ENVIRONMENTAL RESTORATION PROGRAM

FINAL REMEDIAL ACTION COMPLETION REPORT ERP SITE NO. 2



157TH AIR OPERATIONS GROUP JEFFERSON BARRACKS AIR NATIONAL GUARD STATION MISSOURI AIR NATIONAL GUARD ST. LOUIS, MISSOURI

Prepared For:

ANG/A7CVR Andrews AFB, Maryland

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Contract No. DAHA92-01-D0007 Delivery Order No. 66 MWH File No. 2090955

Prepared For:

ANG/A7CVR Andrews AFB, Maryland

Prepared By:

MWH Americas, Inc.

July 2006

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MISSOURI.

JEFFREY L. COON, P.E.

E-27366 REG. NO

DATE



MY REGISTRATION EXPIRES DECEMBER 31, 2006.

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LIST OF ACRONYMS AND ABBREVIATIONS

AOC Area of Concern

AOG Air Operations Group

ANG Air National Guard

ARNG Army National Guard

AST aboveground storage tank

bcy bulk cubic yards

bgs below ground surface

CALM Cleanup Levels for Missouri

A7CVR Civil and Environmental Restoration

C_{IDI} ingestion/dermal contact/inhalation pathway concentration

C_{LEACH} leaching-to-groundwater pathway concentration

COCs constituents of concern

DP direct push

ERP Environmental Restoration Program

GTARC Groundwater Target Concentration

IDOT Illinois Department of Transportation

IDW investigation-derived waste

IRP Installation Restoration Program

MDNR Missouri Department of Natural Resources

MDOT Missouri Department of Transportation

mg/kg milligrams per kilogram

MOANG Missouri Air National Guard

MS/MSD matrix spike/matrix spike duplicate

MWH MWH Americas, Inc.

OpTech Operational Technologies Corporation

PA Preliminary Assessment

PA/SI preliminary assessment/site investigation

PID photoionization detector

LIST OF ACRONYMS AND ABBREVIATIONS (CONTINUED)

ppm parts per million

QC quality control

RA Remedial Action

RI remedial investigation

SI site investigation

Site 2 ERP Site No. 2

STARC Soil Target Concentration

Station Jefferson Barracks Air National Guard Station

SVOCs semivolatile organic compounds

TEH total extractable hydrocarbons

TPH total petroleum hydrocarbons

US United States

USDOT United States Department of Transportation

USEPA United States Environmental Protection Agency

VOCs volatile organic compounds

1.0 INTRODUCTION

MWH Americas, Inc. (MWH) was contracted by the Air National Guard/Civil and Environmental Restoration (ANG/A7CVR) to perform Remedial Action (RA) at Environmental Restoration Program (ERP) Site No. 2 (Site 2) at the Missouri Air National Guard (MOANG) 157th Air Operations Group (AOG) at the Jefferson Barracks ANG Station (Station) in St. Louis, Missouri. This work was performed under Contract No. DAHA92-01-D-0007, Delivery Order No. 0066.

1.1 PURPOSE AND SCOPE

This document serves as the RA Completion Report for activities at Site 2 (RA Report), formerly designated as Area of Concern (AOC) B. These activities were selected based on information contained in the *Final ERP Site No. 2, Remedial Investigation Report*, dated October 2004 (*RI Report*) (MWH, 2004). The purpose of the activities described in this RA Report was to remove and dispose of contaminated soil at Site 2, as outlined in the *Final Removal Action Work Plan*, *ERP Site No. 2*, dated October 2005 (*RA Work Plan*) (MWH, 2005b). The scope of work implemented included the removal and disposal of approximately 143 bulk cubic yards (bcy) of soil, including confirmation soil sampling, backfill, and site restoration.

1.2 PROJECT APPROACH

In 2003, organic constituents were detected in soil at Site 2 at concentrations greater than the Missouri Department of Natural Resources (MDNR) soil target concentrations (STARCs) presented in *Cleanup Levels for Missouri (CALM)*, *Appendix B, Tier 1 Soil and Groundwater Cleanup Standards* (MDNR, 2001). These detections included total petroleum hydrocarbons (TPH), and the following semivolatile organic compounds (SVOCs): benzo(a)anthracene, benzo(a)pyrene, benzo(a)fluoranthene. Arsenic was the only inorganic constituent detected at concentrations greater than the MDNR STARCs; however, detected concentrations were consistent with regional and site-specific background levels (MWH, 2004). Therefore, arsenic is not considered a constituent of concern (COC) in Site 2 soils.

The remedial investigation (RI) groundwater sampling activities, conducted over two rounds, in 2003 indicated no chemical constituents above MDNR CALM Groundwater Target Concentrations (GTARCs). No previous groundwater sampling had been conducted at Site 2.

As provided in the *Draft Further Action Decision Document* (MWH, 2005a), the selected alternative to address soil impacts at Site 2 was "Excavation with Landfill Disposal." On November 29, 2005, in accordance with the *Final RA Work Plan*, the contaminated soil was excavated and transported to an off-site, certified landfill for disposal. On December 2, 2005, the excavation was backfilled with clean fill material. Completed field activities and methods are further discussed in Section 3.0 of this RA Report.

1.3 REPORT ORGANIZATION

The sections of this RA Report are listed below:

- Section 1.0 Introduction
- Section 2.0 Site Description
- Section 3.0 Remedial Action Activities
- Section 4.0 References

Appendix A contains a copy of the Landfill Subtitle D Certification, waste disposal log, and waste manifests for the soil removed from Site 2. Appendix B contains the analytical reports of the soil samples. Appendix C contains a photographic record of the excavation activities. Appendix D contains the drilling logs. Appendix E contains the data validation reports.

2.0 SITE DESCRIPTION

This section provides background information for the Station and Site 2, including location, adjacent land use, Station history, and previous and recent investigations conducted. The contents of this section are taken primarily from the *Installation Restoration Program (IRP) Preliminary Assessment/Site Investigation (PA/SI) Report* dated March 1997 prepared by Operational Technologies Corporation (OpTech) of San Antonio, Texas (OpTech, 1997), and the RI Report (MWH, 2004).

2.1 STATION LOCATION

The Station is located in eastern Missouri, near the confluence of the Missouri and Mississippi Rivers. As shown in Figure 1, the Station lies on the west bank of the Mississippi River, approximately 10 miles south of the City of St. Louis, in St. Louis County, Missouri. The Station occupies approximately 135 acres and is bordered on the east by the Mississippi River. The main entrance is currently through the north gate.

2.2 STATION HISTORY

The Station is currently home to several ANG units, including Headquarters for the 157th AOG, 218th Engineering Installation Squadron, 121st Air Control Squadron, and a Civil Engineering detachment. Also located at the Station are several Army National Guard (ARNG) units, components of the United States (U.S.) Army Reserve, National Guard Bureau Human Resources (eastern division), Defense Fuels Supply, and the U.S. Coast Guard. A full-time work force of approximately 140 people supports the Station's total unit training assembly population of over 2,000 military personnel.

On July 10, 1826, troops of the U.S. First Infantry Regiment encamped at the Site later known as Jefferson Barracks. The military reservation of Jefferson Barracks was established on the eastern edge of the vast expanse of wilderness acquired by the United States under the Louisiana Purchase. At the beginning, Jefferson Barracks was the largest military reservation in the country, covering over 1,700 acres and stretching 2 miles along the west bank of the Mississippi River. Jefferson Barracks was the first basic training camp of the U.S. Army and home to the First U.S. Cavalry. Throughout its history, Jefferson Barracks has served as a U.S. Ordnance

Depot, U.S. Army Engineers Depot, the largest U.S. Army General Hospital, a U.S. Naval Munitions Storage Depot, an Introduction and Separation Center, a National Guard Mobilization Headquarters, an Army Air Corps School, and a training base. During the 1800s, Jefferson Barracks used mainly stone or wooden buildings. An extensive rebuilding program took place between 1890 and 1905, replacing the original stone and wooden buildings with red brick structures, which are still in use today. During World War I, Jefferson Barracks was designated as a clearing house for recruits. With the advent of World War II, there was a large increase in the population of Jefferson Barracks. Numerous temporary facilities and temporary wooden buildings were constructed to accommodate the sudden increase in population.

On June 30, 1946, Jefferson Barracks was deemed unfavorable for use as a training site for a large, modern army, and the Station was declared surplus and erased from the muster roles as an active post. Elements of the Missouri National Guard then moved onto the Station. On June 8, 1950, a tract of land containing 135 acres was transferred to the State of Missouri for use in training and maintaining reserve (National Guard) components of the armed forces. Hence, the former 1,700 acres of military reservation was reduced to 135 acres. In 1952, Missouri Guard units at Jefferson Barracks included the ANG's 157th Tactical Control Group, 181st Tactical Control Squadron, two Ground Electronic Engineering Installation Agency Squadrons, and ARNG Organizational Maintenance companies, which provided vehicle maintenance to ARNG units in the St. Louis area. By 1970, most ARNG units in the St. Louis area had moved to Jefferson Barracks, and most of the maintenance activities at Jefferson Barracks were related to vehicle maintenance support or ARNG combat units.

In order for the U.S. Air Force to provide funding for the construction and maintenance of facilities used by the ANG at Jefferson Barracks, they required the property be leased back to the Federal Government for a term of at least 20 years. This lease was signed in 1970 and is effective until the year 2023. Since the lease was signed, the ANG has upgraded many of the 1890- to 1905-era buildings (red brick) to modern-day standards, while preserving their historical architectural features. The temporary wooden buildings from the World War II era have been demolished with the exception of one building, which has been upgraded and is currently in use as a carpenter shop for the ANG Civil Engineers. Some buildings under ARNG control have





MAP SOURCE: USGS TOPOGRAPHIC QUADRANGLES OAKVILLE, MISSOURI-ILLINOIS WEBSTER GROVES, MISSOURI-ILLINOIS 157TH AIR OPERATIONS GROUP JEFFERSON BARRACKS AIR NATIONAL GUARD STATION ST. LOUIS, MISSOURI

AMERICAN

3 3

36

9

30

31

157TH AIR OPERATIONS GROUP LOCATION

FIGURE 1



been improved, but most have not been maintained due to lack of funding. ANG units assigned to Jefferson Barracks provide radar support to both active and reserve organizations. ARNG units provide combat engineers, military police, and transportation and vehicle maintenance support. The size of the full-time work force, Air Force and Army technicians, active duty personnel, and Missouri State employees gives the Station the appearance of an active duty facility.

2.3 PREVIOUS INVESTIGATION ACTIVITIES

The ANG Readiness Center/Installation Restoration Branch authorized OpTech to conduct a PA/SI at the Station. The Preliminary Assessment (PA) of the 157th AOG was initiated by the ANG Readiness Center and OpTech personnel in November 1993. The PA consisted of interviews with personnel who were stationed at Jefferson Barracks at the time of the interview, or who were retired or currently assigned to other military installations. The individuals interviewed were knowledgeable of current and former waste disposal practices conducted at the Station. The PA also included a review of Station records and field observations.

The PA process revealed four AOCs at the Station, based on historical use of hazardous materials and hazardous wastes; one of the AOCs was designated AOC-B, a storage area south of Building 51, now known as Site 2 (Figure 2). The four AOCs (AOC-A through AOC-D) were further investigated by OpTech during the site investigation (SI) phase of their investigation to determine whether contamination was present at each AOC and, if so, whether concentrations were sufficient to warrant further investigation as an ERP site. The SI phase was conducted from December 5 through 15, 1994 and consisted of the following components:

- A geophysical survey was conducted at AOC-A and AOC-D to provide information
 on possible buried sources, and to verify no subsurface structures or hazards to
 drilling were present, based on historical information obtained during the PA.
- A soil vapor survey was conducted at the four AOCs to delineate the extent of benzene, toluene, ethylbenzene, total xylenes, and TPH; the results of which were used to develop the optimum locations of borings.

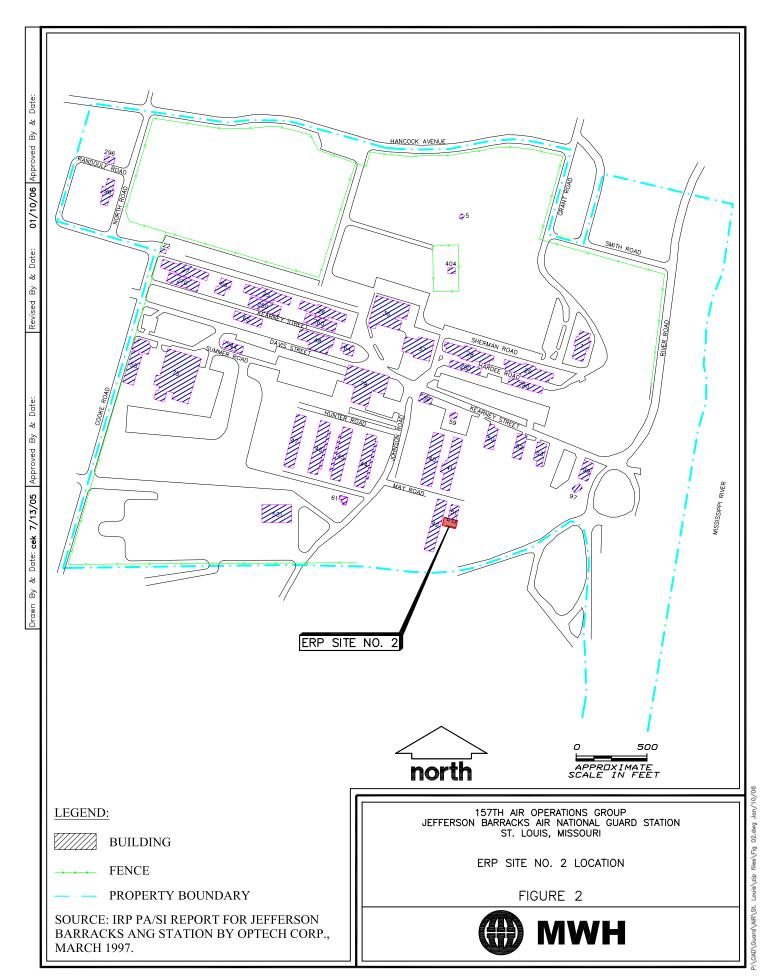
 Soil borings were drilled at the four AOCs to confirm and delineate chemical constituents in soil.

Fourteen soil borings were drilled at the AOCs to obtain soil samples for field screening, subsurface geological characterization, and laboratory analyses. A total of 37 soil samples and 3 surface sediment samples were submitted for AOC-specific analyses, which included testing for volatile organic compounds (VOCs), SVOCs, TPH, and total metals. The soil samples were field-screened using a photoionization detector (PID) and a field gas chromatograph, then subsequently analyzed for the laboratory parameters related to the potential COCs identified in the PA. The historical analyte detections in soil from the 1994 SI are included as Appendix A of the RI Report (MWH, 2004).

Piezometer installation was planned as part of the SI activities to determine groundwater flow direction in the vicinity of the AOCs; however, since groundwater was not encountered above bedrock in the majority of borings, and under the direction of the ANG, piezometers were not installed in the soil borings.

AOC-A, AOC-C, and AOC-D, designated by OpTech during the PA/SI, received a No Further Response Action Planned designation from the MDNR in a letter dated May 28, 2003 and were, therefore, not addressed further in the RI Report.

In September 2003, MWH finalized the *ERP Site No. 2 Remedial Investigation Work Plan* describing procedures of the additional investigation sampling and analysis activities at Site 2. The technical approach was to use data gathered during previous investigations to streamline and focus the RI field data collection activities. The purpose of the RI investigative was to verify the soil and groundwater conditions noted during the SI; to provide the additional information necessary to delineate the areal extent, depth, and concentration of constituents present in soil and groundwater; and to determine the apparent direction of groundwater flow beneath Site 2. The proposed RI activities included the advancement of eight soil probe holes to collect near-surface soil samples; the drilling of soil borings to facilitate installation of four groundwater monitoring wells (MW-1, MW-2, MW-3, and MW-4); and two separate rounds of groundwater



monitoring at the newly-installed wells. The RI fieldwork was conducted during October and December 2003.

Results of the previous investigations are presented in the RI Report (MWH, 2004) and are summarized in Section 2.5 of this RA Report.

2.4 SITE 2 DESCRIPTION AND HISTORY

Based on the PA conducted in 1993 and 1994, Building 51 was constructed in the late 1960s. It was used for vehicle maintenance on a full-time basis until 1975. Building 51 had two maintenance bays where two to four vehicles were serviced weekly. The used oil generated by vehicle maintenance activities at Building 51 was disposed east of Building 42 and south of Building 51 during the 1960s and 1970s. The PA determined the AOC at Building 51 to be an approximate 40- by 60-foot area adjacent to the building on the south side, surfaced by grass, gravel, and a small concrete pad (Figure 3). This area is currently used to store grounds maintenance vehicles and equipment, and other miscellaneous nonhazardous materials. A small storage building/shed is situated on a 10- by 10-foot concrete pad, adjacent to the southwest corner of Building 51; and a 17- by 21-foot concrete tank dike, constructed in 1991, is situated adjacent to the southeast corner of Building 51.

A 3,000-gallon aboveground storage tank (AST) was used to store waste motor oil in the southwestern portion of the storage area; the AST was removed, and no physical evidence of its previous location remains. The AST replaced 55-gallon drums that had previously been used for storage of the used oil. It is estimated the AST was present from the early 1970s until the late 1980s and was used to store waste motor oil from ARNG maintenance facilities. Other materials such as hydraulic fluid, new motor oil, and cleaning compounds were stored in 55-gallon drums on gravel within the storage area. The gravel was periodically replaced because of staining from spilled materials. No records documenting the disposition of the replaced gravel were found during the OpTech PA/SI work.

During the SI, eleven soil vapor survey points (labeled 10 through 20; Figure 3) were advanced at Site 2 to screen for chemical constituents associated with possible spillage from used oil and solvent storage. Four soil borings (labeled B-001BH through B-004BH; Figure 3) were

advanced at Site 2, and three soil samples were collected from each boring for laboratory analysis. Each soil sample was analyzed for VOCs, SVOCs, TPH, and metals. TPH, benzo(a)pyrene, and beryllium were detected in soil at concentrations greater than the current MDNR STARCs.

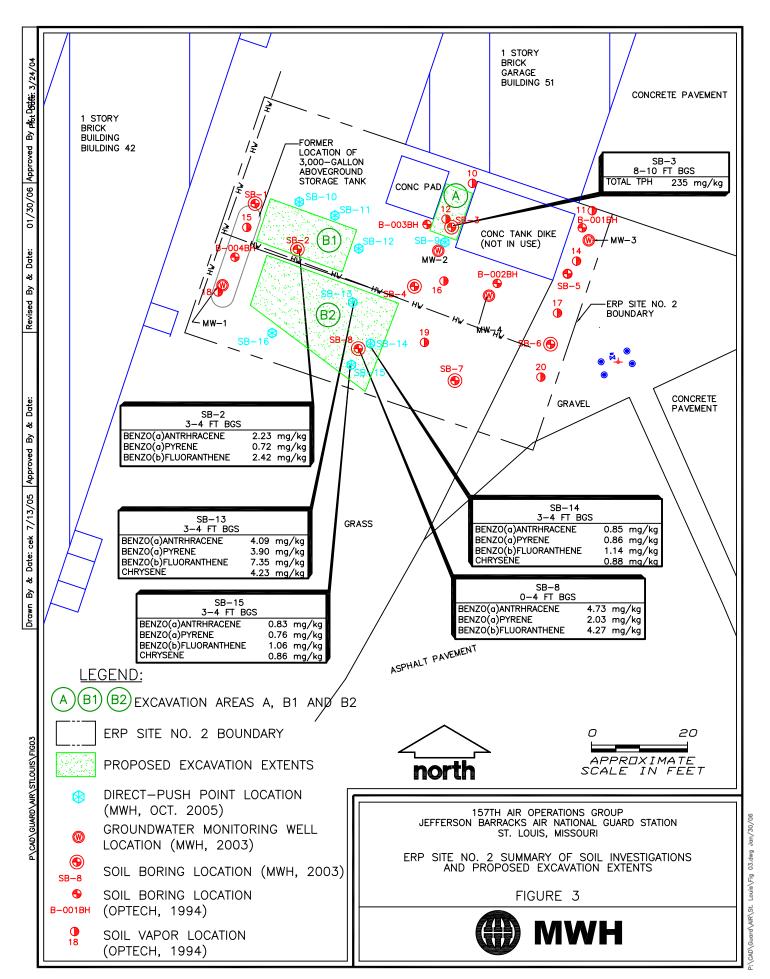
2.5 NATURE AND EXTENT OF IMPACTS

Based on results of soil sampling completed through the 2003 RI activities at Site 2, it appeared natural attenuation had reduced concentrations of chemical constituents in soil over time. As shown in Figure 3, chemical constituents in soil at concentrations greater than MDNR STARCs were generally limited to total TPH from 8 to 10 feet below ground surface (bgs) at boring SB-3 near the southwest corner of the large concrete pad (impacted Area A), and SVOCs in the shallow intervals of SB-2 and SB-8 east of the former AST (impacted Area B).

Beryllium was detected at concentrations greater than the MDNR CALM standard in ten of the twelve soil samples collected during the 1994 SI activities. Arsenic was detected at concentrations greater than the CALM standard in seven of the eight deep soil samples (seven of the total sixteen samples) collected during the 2003 RI. High levels of arsenic and beryllium are common in soils near the Station, per the geochemical survey of Missouri agricultural soils undertaken in the 1970s (Tidball, 1984), and are likely normal background levels.

The RI groundwater sampling activities conducted over two rounds in 2003 indicated no chemical constituents at concentrations greater than MDNR CALM standards. No previous groundwater sampling had been conducted at Site 2. Two rounds of water level measurements indicate a consistent local groundwater flow direction to the east.

Analytical results and analytical summary tables of the sampling activities completed through the 2003 RI activities can be found in the RI Report (MWH, 2004).



3.0 REMEDIAL ACTION ACTIVITIES

The following sections outline the field activities conducted for the RA at Site 2, including soil removal, off-site disposal, and monitoring well replacement. The principal RA elements addressed in this RA Report are as follows:

- Direct-push investigation prior to RA activities.
- Excavation of an estimated 73.7 bcy (based on 100 pounds of soil per cubic foot of 99.54 tons excavated) of soils exceeding the remediation objectives.
- Confirmatory sampling of the excavations.
- Transportation of excavated materials to a Subtitle D landfill.
- Backfilling the excavation with noncontaminated fill material and regrading of the excavated area.

These work elements have been incorporated into this RA, organized as follows:

- Soil Cleanup Objectives (Section 3.1)
- Direct-Push Investigation (Section 3.2)
- Site Preparation (Section 3.3)
- Site Excavation (Section 3.4)
- Transportation (Section 3.5)
- Site Restoration and Demobilization (Section 3.7)

3.1 SOIL CLEANUP OBJECTIVES

The acceptable soil contaminant levels (soil cleanup objectives) for Site 2 are the Missouri CALM Tier 1 STARCs listed in Table B1 of the MDNR CALM guidance document. Because the current land use is not restricted to industrial, Scenario A is used as the initial evaluation criteria. The evaluation criteria for Scenario A indicates soil concentrations must meet the lesser of the combined soil ingestion/dermal contact/inhalation pathway concentration (C_{IDI}) or the leaching-to-groundwater pathway concentration (C_{LEACH}) values. The soil cleanup objectives for COCs at Site 2 are summarized in Table 1. The COCs are the analytes that were detected at concentrations at or above soil cleanup objectives in soil samples collected during site investigations at Site 2.

TABLE 1

SOIL CLEANUP OBJECTIVES ERP SITE NO. 2 157TH AIR OPERATIONS GROUP JEFFERSON BARRACKS AIR NATIONAL GUARD STATION ST. LOUIS, MISSOURI

Constituent of Concern	Soil Cleanup Objective (mg/kg)
Semivolatile Organic Compounds	
Benzo(a)anthracene	0.2
Benzo(a)pyrene	0.2
Benzo(b)fluoranthene	0.6
Chrysene*	0.2
Total Petroleum Hydrocarbons	200

Notes:

mg/kg = Milligrams per kilogram.

^{*} Chrysene included as a constituent of concern following the October 2005 direct-push investigation.

3.2 DIRECT-PUSH INVESTIGATION

3.2.1 Investigation Methodology

Prior to commencement of excavation, a direct-push (DP) soil sampling investigation was conducted on October 20, 2005, using a Geoprobe[®] in order to confirm proposed lateral dimensions of required excavations. Locations of DP sampling points/soil borings are shown in Figure 3. One soil boring (SB-9) was advanced to 12 feet bgs near impacted Area A and seven soil borings were advanced to 8 feet bgs around impacted Area B. Soil samples were collected continuously from ground surface in 4-foot lifts using a stainless steel barrel lined with a clean disposable plastic sleeve. The soil from each sleeve was sampled for potential laboratory analysis and screened with a PID for VOCs.

Based on PID readings and visual observations, one soil sample from SB-9 at impacted Area A was proposed to be submitted for fixed laboratory analysis of total extractable hydrocarbons (TEH) by Iowa Method OA-2. Since PID readings and observations did not indicate a presence of VOCs in the screen samples collected from SB-9, the soil sample collected from 6 to 8 feet bgs (SB9 6-8') was submitted for laboratory analysis, which is the depth of the highest TPH concentration from SB-3.

One soil sample was collected from each of the soil borings around impacted Area B (SB-10 through SB-16) and submitted for fixed laboratory analysis of SVOCS by United States Environmental Protection Agency (USEPA) Method 8270. The samples were collected from a sampling interval if 0 and 4 feet bgs, which is the same sampling interval used for the RI at impacted Area B.

Observations of the soil encountered in soil borings SB-9 to SB-16 were recorded on the drilling logs in Appendix D, including PID readings. No particular odors or staining were observed in the soil encountered in these soil borings.

3.2.2 Analytical Results of Direct-Push Investigation

In sample SB9 6-8', which was only analyzed for TEH, no hydrocarbons were detected for any of the petroleum hydrocarbon ranges (i.e., diesel, motor oil). For the SVOC analyses of the samples

collected from 0 to 4 feet bgs from soil borings SB-10 to SB-16, no SVOCs were detected in the samples from soil borings SB-10, SB-11, SB-12, and SB-16. A total of 13 different SVOC analytes were detected in the samples from soil borings SB-13, SB-14, and SB-15; however, only the analytes benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene had concentrations above cleanup objectives in the samples collected from three borings. Benzo(a)pyrene was detected above the cleanup objective only in sample SB-13 0-4'. Table 2 summarizes the analytical results for the DP investigation and compares the detected concentrations to the soil cleanup objectives.

3.2.3 Conclusion of Direct-Push Investigation

Analytical results of the DP investigation indicated COC concentrations greater than soil cleanup objectives at sample locations beyond the excavations areas proposed in the *Final Removal Action Work Plan, ERP Site No. 2* (MWH, 2005b). Modeling algorithms (krieging) were, therefore, used to estimate excavation extents near that location. The final proposed excavation areas were submitted in writing on November 22, 2005, to the ANG Project Manager, the MDNR Project Manager, and the ANG Contracting Officer for approval prior to implementation. The proposed estimated lateral extent of soil to be excavated is shown in Figure 3.

As proposed in the RA Work Plan, excavation of impacted soils was to be conducted at Site 2 in three excavations within the two impacted areas, Areas A and B (Figure 3). Excavation A was proposed at impacted Area A, which is near previous sample location SB-3 between the concrete pad and the concrete tank dike. This excavation, with dimensions of approximately 5 feet by 10 feet, was to be conducted to a depth of approximately 12 feet bgs. Clean overburden from 0 to 5 feet bgs was to be removed, stockpiled, and reused as backfill in Excavation A. Impacted Area B, in the vicinity of previous sample locations SB-2 and SB-8, was proposed to be divided into two separate excavations (Excavations B1 and B2) due to the presence of a marked underground water line that runs through Area B (Figure 3). Excavation B1 near SB-2 is rectangular with dimensions of approximately 10 feet by 20 feet. Excavation B2 near SB-8 is in the shape of a trapezoid with dimensions of approximately 15 feet by 30 feet. These two excavations were proposed to be approximately 6 feet deep.

TABLE 2

ANALYTICAL SUMMARY OF DIRECT-PUSH SOIL SAMPLING OCTOBER 20, 2005

ERP SITE NO. 2

157TH AIR OPERATIONS GROUP

JEFFERSON BARRACKS AIR NATIONAL GUARD STATION

ST. LOUIS, MISSOURI (results in mg/kg)

Analyte / Sample ID	SB9 6-8'	SB10 3-4'	SB11 3-4'	SB12 3-4'	SB13 3-4'	SB14 3-4'	SB15 3-4'	SB16 3-4'	Cleanup Objective
Total Extractable Hydrocarbons	ND								200
Acenaphthene		ND	ND	ND	1.33	ND	ND	ND	1,000
Anthracene		ND	ND	ND	2.21	0.41	0.40	ND	8,500
Benzo(a)anthracene		ND	ND	ND	4.09	0.85	0.83	ND	0.2
Benzo(a)pyrene		ND	ND	ND	3.90	0.86	0.76	ND	0.2
Benzo(b)fluoranthene		ND	ND	ND	7.35	1.14	1.06	ND	0.6
Benzo(g,h,I)perylene		ND	ND	ND	1.92	0.52	0.40	ND	NE
Chrysene		ND	ND	ND	4.23	0.88	0.86	ND	0.2
Dibenzofuran		ND	ND	ND	0.56	ND	ND	ND	110
Indeno(1,2,3-cd)pyrene		ND	ND	ND	0.92	0.36	ND	ND	1.8
Fluoranthene		ND	ND	ND	9.10	2.15	2.01	ND	1,600
Fluorene		ND	ND	ND	0.94	ND	ND	ND	1,100
Phenanthrene		ND	ND	ND	8.74	1.98	1.98	ND	NE
Pyrene		ND	ND	ND	9.85	2.50	2.16	ND	2,100

^{-- =} Sample not analyzed for this analyte.

Values in **Bold** exceed cleanup objective.

NE = No established STARC for this analyte.

mg/kg = Milligram per kilogram.

ND = Not detected above laboratory method detection limits.

Cleanup Ojectives are the Tier 1 Soil Target Concentrations (STARCs) from Table B1 of the Missouri Department of Natural Resources (MDNR) Cleanup Level for Missouri (CALM) guidance document.

The total volume of soil excavated from Site 2 was expected to be a maximum of 143 bcy from the three excavations.

3.3 SITE PREPARATION

Mobilization and site preparation activities at Site 2 included traveling to the site; marking underground utility locations; identifying the excavation area; identifying staging areas for equipment and supplies, investigation-derived waste (IDW), used personal protective equipment, and disposable field equipment; and coordinating with MOANG personnel to ensure compliance with safety and security protocols that will not interfere with Station operations. MWH coordinated with MOANG personnel to obtain the appropriate dig permit to verify the location of underground utilities in the areas where excavation activities were to take place. In addition, as requested by MWH, 157th AOG civil engineering representatives attended the excavation activities to assist in ensuring marked and any encountered unmarked underground utilities were not harmed. Redirection or abandonment of utilities was not expected during this RA.

Prior to excavation activities on November 29, 2005, the corners of Excavations A, B1, and B2 were temporarily flagged as measured from the concrete pad at the southwest corner of Building 51 as shown in Figure 3. The presence of a marked underground electric line to the west of Excavations B1 and B2 meant that the actual excavation boundaries on the west side of this area had to be moved to the east 5 feet, as requested by the 157th AOG civil engineers. The 157th AOG civil engineers also requested that the excavation did not come within 3 feet of the marked underground water line that separates Excavations B1 and B2. Therefore, the excavation boundaries were remarked on site, as shown in Figure 4, with marking paint to account for the safe working distances from the underground utilities.

157th AOG personnel provided access to Site 2 by unlocking the gate to the southwest of Site 2 and moving the small storage building/shed from the concrete pad prior to RA activities. No clearing and grubbing of surface vegetation from the excavation area was necessary.

Due to the flat ground surface at Site 2, grading was not necessary to promote positive run-on and runoff from the areas of excavation prior to excavating contaminated soils. A sheet of

durable plastic sheeting was placed on the ground south of excavation areas in order to separate the stockpiled excavated soil from the ground surface.

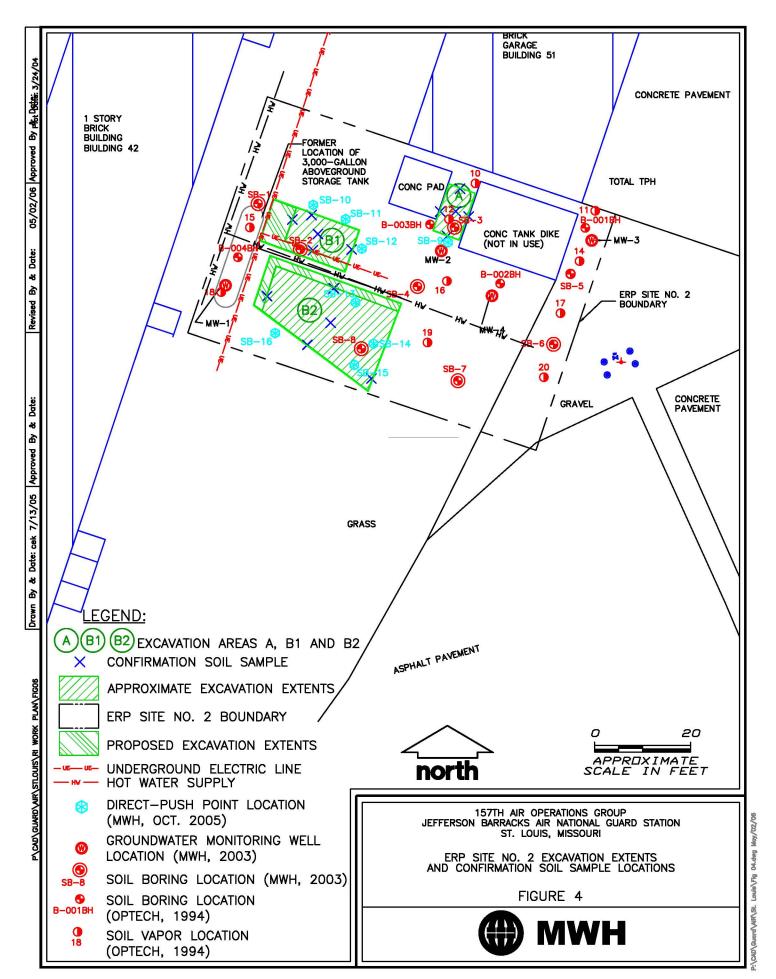
3.4 SITE EXCAVATION

3.4.1 Excavation of Impacted Soils

Soil excavation began the morning of November 29, 2005 and was completed that afternoon. An MWH representative oversaw the excavation, stockpiling, and loading of soils into trucks for transportation and off-site disposal. The excavation activities were completed by Evans Environmental Construction of Glenwood, Iowa using a wheel-mounted excavator equipped with a front-end loader for truck loading and backfilling. A small front-end loader was also used for backfilling and grading.

Excavated materials from Site 2 were temporarily stockpiled on plastic sheeting. While waiting to be loaded into trucks for transportation to the disposal facility, the stockpile was covered with plastic sheeting which was secured with large cinder blocks. On December 1, 2005, the stockpiled soil was loaded into four dump trucks for transportation to Roxana Landfill in Roxana, Illinois, a licensed Subtitle D facility. The excavated soils were transported by Beelman Truck Company, of East St. Louis, Illinois.

Excavation extents are shown in Figure 4. As proposed in the RA Work Plan, Excavation A was conducted to a depth of approximately 12 feet bgs with dimensions of approximately 5 feet by 10 feet. Clean overburden from 0 to 5 feet bgs was removed, stockpiled, and reused as backfill in Area A. Excavations B1 and B2 were conducted to a depth of approximately 6 feet bgs. Excavation B1 was rectangular, with dimensions of approximately 7 feet by 12 feet. Excavation B2 was shaped like a trapezoid with dimensions of approximately 17 feet by 23 feet. The total volume of impacted soil excavated from Site 2 was estimated at approximately 73.7 bcy (based on 100 pounds of soil per cubic foot of 99.54 tons excavated). With the exception of the known underground water line that separates Excavations B1 and B2, underground utilities were not known to be located within the planned excavation areas. However, two electric lines within plastic conduits were encountered at the southern boundary of Excavation B1 (Figure 4). These electric lines are located less than 2 feet bgs, are 1 foot apart, and adjacent to one another. These



electric lines were unharmed during excavation activities. Excavation was not performed below the groundwater table and no water was encountered during excavation. Photographs of the excavation events are included in Appendix C.

3.4.2 PID Screening of Impacted Soils

During excavation of impacted soils, grab soil samples were collected from the impacted material from each excavation area and were screened on site for total VOCs using a Photovac 2020 PID. Two screen samples were collected from the center of Excavation A. One screen sample was collected at a depth of 10 feet bgs and the other at a depth between 5 and 6 feet bgs. These samples had PID readings of 965 parts per million (ppm) and 232 ppm, respectively. One screen sample was collected from a depth of 3 feet bgs from the center of Excavation B2. This sample had a PID reading of 0.0 ppm. Prior to use, this PID was calibrated with ambient air and 100 ppm isobutylene, in accordance with manufacturer specifications.

3.4.3 Confirmation Soil Sampling Approach

Upon reaching the anticipated excavation limits, visual observations and PID readings were used as a screening method to assess if the soils with contaminant levels above the cleanup objectives had been removed to the extent confirmatory samples should be collected for laboratory analysis. The PID was tested against clean soil in the vicinity of the excavation area to assess readings that may be indicative of impacted soil. Depending upon the PID readings, the presence of staining, or olfactory evidence of potentially impacted soil in the excavation, professional judgement was utilized to determine when confirmation samples should be collected. Confirmatory soil samples were collected from the bottom of the excavation and along the sidewalls to confirm the removal of soils exceeding the cleanup objectives. As specified in Section 3.3.2 of the RA Work Plan, the sampling approach used was a statistical random sampling strategy to minimize any sampling biases. The calculated sample locations determined that excavation sidewall samples were collected at a frequency of one sample for each sidewall around each excavation. While on site, a verbal request was made by MWH to Mr. Steve Lang of the MDNR on November 29, 2005 to collect floor samples in addition to the sidewall samples proposed in the RA Work Plan. Mr. Lang verbally approved the request. Sidewall samples were collected approximately at the

proposed locations shown in Figure 7 of the RA Work Plan. One soil sample was also collected at the floor of each excavation. A total of 3 confirmation floor samples and 12 confirmation sidewall samples were collected on November 29, 2005 at the confirmation soil sample locations shown in Figure 4.

3.4.4 Confirmatory Sample Collection, Handling, and Analysis

The MWH Project Engineer coordinated with the excavator operator to obtain confirmation soil samples from the excavation sidewalls and floor of the excavation. Sample locations are presented in Figure 4. Sidewall samples from Excavation A were collected at an approximate depth of 9 feet bgs, which is within the depth range of the most impacted soil in that area as determined in the RI of Site 2 (MWH, 2004). The floor sample from Excavation A was collected at a depth of 12 feet bgs. The sidewall samples collected from Excavations B1 and B2 were collected at a depth of 3 feet bgs. The floor samples collected from Excavations B1 and B2 were collected at a depth of 6 feet bgs.

Samples collected from the floor of the excavation were labeled in a manner which states the excavation area (ExA, ExB1, or ExB2) followed by the sample position (SW for excavation sidewall or FL for excavation floor), the sidewall location (North, South, East, or West- not applicable to floor samples), and the approximate depth of the sample below ground surface. For example, the sidewall sample collected from the west sidewall of Excavation B2 is labeled as ExB2-SW-West-3' and the floor sample from Excavation A is labeled as ExA-FL-12'. The soil confirmation samples were collected directly from the excavator bucket with the exception of samples ExB1-SW-West-3' and ExB1-SW-South-3', which were collected using a shovel due to their close proximity to the encountered electric lines.

The sampling was undertaken in accordance with the RA Work Plan and Quality Assurance Project Plan (Appendix A of the RA Work Plan).

Confirmation soil samples were analyzed at Keystone Laboratories, Inc. in Newton, Iowa using USEPA Methods and methods approved by the State of Missouri. Each sample collected from

Excavation A was analyzed for TEH using Iowa Method OA-2. Each sample collected from Excavations B1 and B2 was analyzed for SVOCs using USEPA Method 8270C.

Quality control (QC) samples were collected and analyzed to assess the quality of the sampling effort and the analytical data. The QC samples included two duplicates and one matrix spike/matrix spike duplicate (MS/MSD) sample. The samples Site 2-Dup1 and Site 2-Dup2 were duplicates of samples ExA-SW-East-9'and ExB2-SW-North-3' respectively. Extra soil volume was collected for MS/MSD analysis at sample location ExB1-SW-East-3'. Analytical results of the QC samples and validation of laboratory analytical data are discussed in Section 3.4.5.

3.4.5 Analytical Results of Confirmation Soil Samples

The confirmation soil samples collected from Excavation A were analyzed for TEH by Iowa Method OA-2. Extractable hydrocarbons, mostly in the mineral spirits and waste oil ranges, were detected in all samples from Excavation A, except for sample ExA-SW-West-9', which had no detectable TEH. TEH ranged from 9 milligrams per kilogram (mg/kg) in ExA-FL-12' to 147 mg/kg in ExA-SW-East-9'. TEH did not exceed the soil cleanup objective in any of the confirmation soil samples from Excavation A. The confirmation soil sampling results for the samples collected from Excavation A are summarized in Table 3.

The confirmation soil samples collected from Excavations B1 and B2 were analyzed for SVOCs by USEPA Method 8270. SVOCs were not detected in any of the confirmation soil samples from Excavations B1 and B2. The confirmation soil sampling results for the samples collected from Excavations B1 and B2 are summarized in Table 4. Complete analytical reports for the soil confirmation samples are included in Appendix B.

The soil samples, including QC samples, were reviewed by an MWH chemist based on results of the data evaluation parameters and QC sample results provided by the laboratory. Details and findings of the analytical review (data validation) are included in the Data Validation Reports in Appendix E. Based on results of the data validation, all data are considered complete and valid as qualified.

TABLE 3

ANALYTICAL SUMMARY OF CONFIRMATION SOIL SAMPLES NOVEMBER 2005 EXCAVATION A ERP SITE NO. 2

157TH AIR OPERATIONS GROUP JEFFERSON BARRACKS AIR NATIONAL GUARD STATION ST. LOUIS, MISSOURI

(results in mg/kg)

Sample ID	Total Extractable Hydrocarbons (TEH)	TEH as Kerosene	TEH as Mineral Spirits	TEH as Hydraulic Fluid		TEH as Diesel Fuel	TEH as Waste Oil	PID Reading (ppm)
ExA-SW-North-9'	75	ND	19	ND	ND	ND	57	2.5
ExA-SW-East-9'	147	ND	6	ND	ND	ND	141	4.3
ExA-SW-West-9'	ND	ND	ND	ND	ND	ND	ND	1.4
ExA-SW-South-9'	34	ND	14	ND	ND	ND	20	89
ExA-FL-12'	9	ND	ND	ND	ND	ND	9	3.0
Dup-1	5	ND	ND	ND	ND	5	ND	
Cleanup Objective	200*	NE	NE	NE	NE	NE	NE	

Notes:

Cleanup Ojectives are the Tier 1 Soil Target Concentrations (STARC) from Table B1 of the Missouri Department of Natural Resources (MDNR) Cleanup Level for Missouri (CALM) guidance document.

Dup-1 = Duplicate sample of ExA-SW-East-9'.

mg/kg = Milligrams per kilogram.

ND = None detected above laboratory method detection limits.

NE = No established STARC for this analyte.

- * = Cleanup objective (STARC) is for total petroleum hydrocarbons (TPH).
- -- = Photoionization detector (PID) reading not taken of this sample.

TABLE 4

ANALYTICAL SUMMARY OF CONFIRMATION SOIL SAMPLES NOVEMBER 2005 EXCAVATION B ERP SITE NO. 2

157TH AIR OPERATIONS GROUP JEFFERSON BARRACKS AIR NATIONAL GUARD STATION ST. LOUIS, MISSOURI

Excavation	Sample ID	Semivolatile Organic Compounds (mg/kg)	PID Reading (ppm)
B1	ExB1-SW-North-3'	ND	1.2
B1	ExB1-SW-East-3'	ND	0.0
B1	ExB1-SW-West-3'	ND	
B1	ExB1-SW-South-3'	ND	
B1	ExB1-FL-6'	ND	0.0
B2	ExB2-SW-North-3'	ND	0.0
B2	ExB2-SW-East-3'	ND	0.0
B2	ExB2-SW-West-3'	ND	0.0
B2	ExB2-SW-South-3'	ND	0.0
B2	ExB2-FL-6'	ND	0.0
B2	Dup-2	ND	0.0

Notes:

Dup-2 = Duplicate sample of ExB2-SW-North-3'.

mg/kg = Milligrams per kilogram.

ND = None detected above laboratory method detection limits.

ppm = Parts per million of volatile organic compounds.

-- = Photoionization detector (PID) reading not taken of this sample.

3.5 TRANSPORTATION

Excavated materials were stockpiled on site for subsequent loading into trucks for transport to Roxana Landfill, a licensed Subtitle D disposal facility. Transportation of materials was conducted using applicable United States Department of Transportation (USDOT), Illinois Department of Transportation (IDOT), and Missouri Department of Transportation (MDOT) placarding and manifesting requirements.

Loaded trucks were covered with tarpaulins during transport to the disposal facility. While loading, the trucks were restricted to previously excavated and confirmed "clean" areas of the excavation and site. Therefore, the truck's tires would not come in direct contact with the contaminated soils and would not need to be decontaminated prior to leaving Site 2.

A total of four loads of impacted soil totaling 99.54 tons were hauled off site to Roxana Landfill on December 1, 2005. The waste disposal log for the RA project is presented in Appendix A along with copies of the waste manifests and load tickets.

3.6 SITE RESTORATION AND DEMOBILIZATION

Upon receipt of analytical results below the cleanup objectives, the excavation was backfilled with a clean, suitable fill material (sand) on December 2, 2005. Clean fill was obtained from an off-site source. Backfill was completed and compacted using the excavator. Areas where vegetative cover was removed as a result of the RA activities were graded to meet the existing grade. To allow the excavated area to be restored to preexcavation condition, perennial rye grass was spread on the surface of the excavation backfill material, in an effort to revegetate the excavation area.

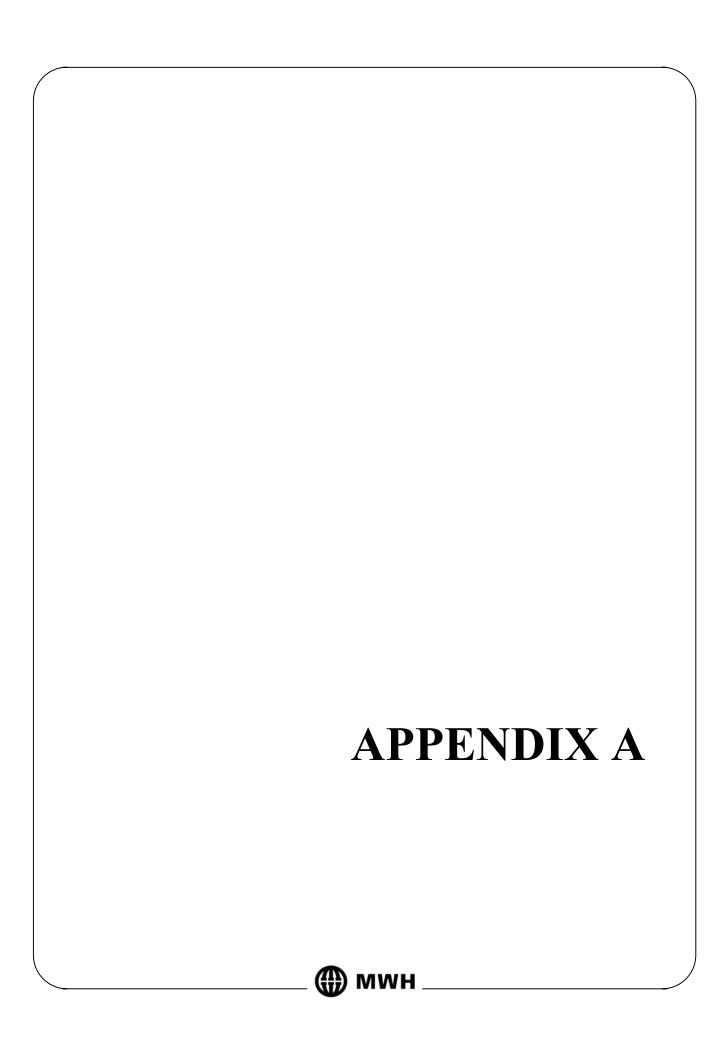
At the completion of excavation activities, any residual soil on the excavation equipment was removed by a shovel and brush. Contaminated soil generated from the decontamination procedures was placed on the excavated soil stockpile and transported to Roxana Landfill for disposal.

4.0 REFERENCES

- Missouri Department of Natural Resources. 2001. Cleanup Levels for Missouri (CALM)

 Appendix B. Tier 1 Soil and Groundwater Cleanup Standards. June 29.
- MWH Americas, Inc. (MWH) 2004. Final ERP Site No. 2 Remedial Investigation Report, 157th Air Operations Group, Jefferson Barracks Air National Guard, St. Louis, Missouri. October.
- MWH, 2005a. Draft Further Action Decision Document, ERP Site No. 2, 157th Air Operations Group, Jefferson Barracks Air National Guard, St. Louis, Missouri. July.
- MWH, 2005b. Final Removal Action Work Plan, ERP Site No. 2, 157th Air Operations Group, Jefferson Barracks Air National Guard, St. Louis, Missouri. October.
- Operational Technologies Corporation, March 1997. Installation Restoration Program Preliminary Assessment/Site Inspection Report, 157th Air Control Group, Jefferson Barracks Air National Guard, Missouri Air National Guard, St. Louis, Missouri, Final Version, Volumes I and II, San Antonio, Texas.

P:\Word Processing\AIR NATIONAL GUARD\MOANG-ST. LOUIS- JEFFERSON BARRACKS\RA COMPLETION REPORT-ERP SITE $2\07-06-FINAL$ RA Completion Report - ERP Site $2\07-06-Final$ RA Completion Report-ERP Site 2.000



APPENDIX A

LANDFILL SUBTITLE D CERTIFICATION, WASTE DISPOSAL LOG, AND WASTE MANIFESTS



May 4, 2006

Reference: Profile #338Y515938

Adam Newman MWH Constructors 370 Interlocken Blvd. Suite 200 Broomfield, CO 80021

Dear Adam Newman:

MWH Constructors profiled Soil Contaminated with Motor Oil for disposal at Roxana Landfill. The loads were hauled in on December 1, 2005. Disposal ticket numbers 483660, 483662, 483674, and 483676. The material was considered to be an Alternate Daily Cover (ADC), and was used as so.

Attached you will find the cover sheet for the Roxana Landfill Permit.

Should you have any questions or need any additional information, please call me @ 618-779-6497, or you may email me @ jill.kahl@awin.com.

Thank you,

Jill Kall

Jill Kahl.

Special Waste Sales Support Allied Waste/Missouri District

Enclosure (1)

JK



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST. P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397 JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR

RENEE CIPRIANO, DIRECTOR

217/524-3300

June 6, 2005

Certified Mail 7002 3150 0000 1253 0948

OWNER/OPERATOR

Roxana Landfill, Inc. Attn: Mr. Matt Kingsley 4600 Cahokia Creek Road P.O. Box 97 Roxana, Illinois 62084-0097

Re: 1190900002 - Madison County

Roxana Landfill Inc Permit No. 1990-322-LF Modification No. 48 Log No.: 2002-341

Issue Date: January 19, 1994 Expiration Date: January 15, 2009

Permit File

Dear Mr. Kingsley:

Permit has been granted to Roxana Landfill, Inc., as owner and operator, approving development and operation of an existing municipal solid waste and non-hazardous special waste landfill all in accordance with the application and plans provided. Final plans, specifications, application, and supporting documents, as submitted and approved, shall constitute part of this permit and are identified in the records of the Illinois Environmental Protection Agency (the "Illinois EPA"), Bureau of Land, Division of Land Pollution Control by the permit number designated in the

heading above.

Permit No. 1990-322-LF, Modification No. 1 (hereinafter "Permit Modification No. 1") issued January 19, 1994 approved:

a. The development of a horizontal expansion (approximately 72.4 acres) which extends to the west and the north from the 50.8 acre landfill unit approved under Permit No. 1990-322-LF issued May 27, 1993. A portion of this expansion is above the existing landfill units formerly known as Barton 1 North and Barton 2. Thus, completion of the existing unit and approved expansions shall result in a single landfill unit with an approximate area of 104.0 acres within its waste boundaries, an "in-place" net disposal capacity of approximately 9,244,910 cubic yards, and a maximum final elevation of approximately 592 feet above mean sea level.



WASTE DISPOSAL LOG

PROJECT NAME: Jefferson Barracks ANG Station, St. Louis, Missouri **Project Number:** 2090955

Date: 12/1/2005

SHIPMENT	SHIPMENT	DISPOSAL	SHIPMENT	DISPOSAL TICKET	DISPOSAL QUANTITY	
NO.	DESCRIPTION	FACILITY	DATE	NO.	TONS	COMMENTS
1	Soils 20 CY.	Roxana Landfill	12/1/2005	483660	26.30	Waste Oil Contaminated Soil
2	Soils 20 CY.	Roxana Landfill	12/1/2005	483662	26.16	Waste Oil Contaminated Soil
3	Soils 20 CY.	Roxana Landfill	12/1/2005	483674	24.08	Waste Oil Contaminated Soil
4	Soils 20 CY.	Roxana Landfill	12/1/2005	483676	23.00	Waste Oil Contaminated Soil
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Landfill address: Roxana Landfill, 4600 Cahokia Creek Road, Roxana, Illinois 62084.

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property described above in apparent good order, except as noted (contents and condition of contents of packages unknown), marked, consigned, and destined as indicated above, which said carrier (the word carrier being understood throughout this contract as meaning any person or corporation in possession of the property under the contract) agrees to carry to its usual place of delivery at said destination, if on its route, otherwise to deliver to enother carrier on the route to said destination. It is mutually agreed as to each carrier of all or any of. usuar pace or delivery at send destination, if an its noute, otherwise to deliver to enother carrier on the coute to said destination, it is initially agreed as to each carrier of all or any of, said property over all or any portion of said noute to destination and as to each pach a early at any time interested in all or any of, said property, the every service to be performed hereunder shall be subject to all the terms and conditions of the Uniform Domestic Straight. Bill of Lading set forth (1) in Uniform Freight Classifications in effect on the date hereof, if this is a rail or a real-water shipment, or (2) in the applicable motor carrier classification or fariff if this is a motor carrier shipment.

Shipper hereby certifies that he is familiar with all the terms and conditions of the said bill of lading, set forth in the classification or tariff which governs the transportation of this shipment, and the said terms and conditions are hereby agreed to by the shipper and accepted for himself, and his assigns.

This is to certify that the above named materials are properly of accepted, packaged, marked and labeled, and are in proper condition for transportation, according to the applicable regulations of the Department of Transportation.

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he agreed or decklared value of this pro- septically stated by the shipper to be o	of exceeding	për	\$	(Signature of consignor)	Prepaid Cotted
his is to certify that the above it abeled and see in proper condition a Transportation.	ament osserials are properly cassified, described rior transpontation according to the applicable reg-	d, packaged, markett and viations of the Department, UPLACAE.		PLACARDS yes	NO - FURNISHED BY CARRIE SIGNATURE:
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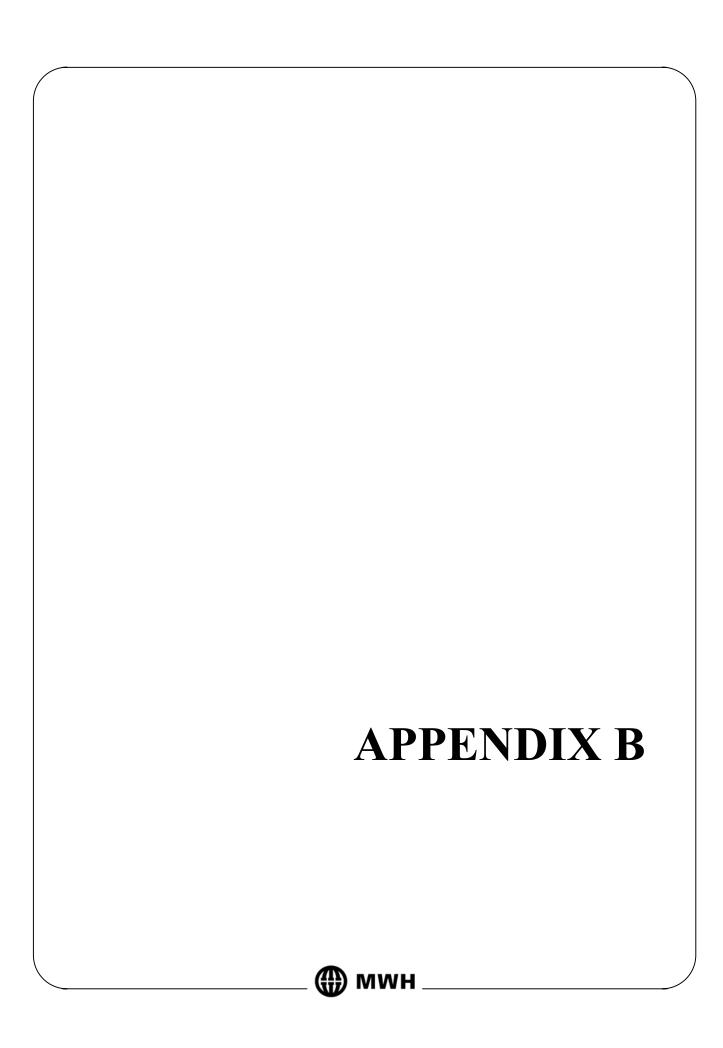
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RECEIVED, subject to the classifications and lavduly filed tariffs in effect on the date of a property described above in apparent good order, except as noted (contexts and excliding said carrier (the word carrier being underspood throughout this apparent as meaning any usual place of delivery at said destination, if on its rapide, otherwise, to deliver to arother a said property over all or any portion of said politic to deliver to all the terms and conditions of the Uniform Demension Straight Bill of its or a rail-water shipment, or [2] in the applicable motor carrier dissification or tariff if this is Shipper hereby certifies that he is familiar with all the terms and conditions of the said shipment, and the said terms and conditions are hereby agreed to by the shipper and acceptance of the said to cartify that the above named materials are properly classified, described, as applicable regulations at the Department of Transportation.	of consents of peckages unknown, marked person or consorbian in presention of the person on the route to said destination. It is any one interested in all or any of said properties of the route for said destination. It is any one interested in all or any of said properting set for the 13-to thifteen Freight Classific a motor carner suppress. I bilt at lading set forth in the classification tied for time of and bis assigns, ackaged, marked and labeled, and are in pro-	spen condition for transportation; eccording to the
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APPENDIX B

ANALYTICAL REPORTS





RECEIVED

NOV 1 8 2005 MW/IOWA

09 November 2005

Adam Newman Montgomery Watson Harza-IA 11153 Aurora Avenue Des Moines, IA 50322

RE: Jefferson Barracks ANG DAHA-A0066-84322-OF

Enclosed are the results of analyses for samples received by the laboratory on 10/21/05 11:15. If you have any questions concerning this report, please feel free to contact me at 1-800-858-5227.

Sincerely,

Jeffrey King, Ph.D.

Laboratory Director





11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Site 2-SB9 6-8'	15J0975-01	Soil	10/20/05 09:25	10/21/05 11:15
Site 2-SB10 3-4'	15J0975-02	Soil	10/20/05 09:50	10/21/05 11:15
Site 2-SB11 3-4'	15J0975-03	Soil	10/20/05 10:08	10/21/05 11:15
Site 2-SB12 3-4	15J0975-04	Soil	10/20/05 10:25	10/21/05 11:15
Site 2-SB13 3-4'	15J0975-05	Soil	10/20/05 10:45	10/21/05 11:15
Site 2-SB14 3-4'	15J0975-06	Soil	10/20/05 11:00	10/21/05 11:15
Site 2-SB15 3-4'	15J0975-07	Soil	10/20/05 11:15	10/21/05 11:15
Site 2-SB16 3-4'	15J0975-08	Soil	10/20/05 11:30	10/21/05 11:15
Site 2-Dup-1	15J0975-09	Soil	10/20/05 00:00	10/21/05 11:15
Site 2-Dup-2	15J0975-10	Soil	10/20/05 00:00	10/21/05 11:15

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB9 6-8' 15J0975-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	stone Labor	atories, I	nc Nev	vton			7.	
Determination of Extractable Petro	eum Hydrocar	bons							
TEH, as kerosene	ND	5	mg/kg	1	1J53125	10/31/05	11/02/05	Iowa OA-2	
TEH, as mineral spirits	ND	5	H	O	48	H	la .	н	
TEH, as hydraulic fluid	ND	5	Ħ	tŧ	н	Ð	8	Ħ	
TEH, as gasoline	ND	5	tt.	Ħ	Ħ	f‡	89	Ħ	
TEH, as #2 diesel fuel	ND	5	Ħ	n	11	t1	n	e	
TEH, as waste oil	ND	5	lf.	Ħ	ff	19	15	В	
Total Extractable Hydrocarbons	ND	5	Ħ	11	н	ŧf	ย	Ŧŧ	
Surrogate: Pentacosane		64.8 %	50-1	'31	"	11	ft	"	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Site 2-SB10 3-4' 15J0975-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labor	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	-								
N-Nitrosodimethylamine	ND		mg/kg dry	1	1K50141	11/01/05	11/02/05	EPA 8270C	
Phenol	ND	0.33	rŧ.	Ħ	1)	1 1	Ħ	n	
Aniline	ND	0.33	11	er	tt	**	Ħ	n	
Bis(2-Chloroethyl) Ether	ND	0.33	11	9	Ħ	Ħ	B	8	
2-Chlorophenol	ND	0.33	Ħ	li	Ħ	a	Ħ	14	
1,3-Dichlorobenzene	ND	0.33	tt	11	11	11	u	H	
1,4-Dichlorobenzene	ND	0.33	#	н	łf	Ħ	n	11	
Benzyl Alcohol	ND	0.33	15	Ħ	ŧ	Ħ	11	19	
1,2-Dichlorobenzene	ND	0.33	Ħ	+1	4	†1	**	#	
2-Methylphenol	ND	0.33	n	ŧ	n	u	ft	19	
Bis(2-Chloroisopropyl) Ether	ND	0.33	Ħ	2 1	н	н	я	a	
n-Nitroso-di-n-propylamine	ND	0.33	11	н	u	Ħ	п	м	
(3 & 4)-Methylphenol	ND	0.33	1†	11	11	**	+1		
Hexachloroethane	ND	0.33	15	fl	Ħ	Ħ	11	nt	
Nitrobenzene	ND	0.33	lf	£ 1	В	‡1	11	ff	
Isophorone	ND	0.33	11	и	B	11	11	n	
2-Nitrophenol	ND	0.33	41	tt.	fl	**	н	14	
2,4-Dimethylphenol	ND	0.33	Ħ	B	ħ	19	**	Ħ	
Bis(2-Chloroethoxy) Methane	ND	0.33	17	Ħ	11	ff	n	41	
2,4-Dichlorophenol	ND	0.33	It	"	**	"	11	U	
1.2,4-Trichlorobenzene	ND	0.33	TÍ	#	16	*	HT .	ŧ∓	
Naphthalene	ND	0.33	#1	6	ŧı	н	#1	ŧŧ	
4-Chloroaniline	ND	0.33	# #	97	Ħ	#	u	н	
Hexachlorobutadiene	ND	0.33	Ħ	H	tř.	я	17	+1	
4-Chloro-3-methylphenol	ND	0.33	¥¥	£2	ŝŧ	75	Ħ	it.	
2-Methylnaphthalene	ND	0.33	,,	n	Ħ	"	N	58	
Hexachlorocyclopentadiene	ND	0.33	11	11	н	BV .	91	¥	
2,4,6-Trichlorophenol	ND	0.33	18	śŧ	9 4	Ħ	**	н	
2,4,5-Trichlorophenol	ND	1.65	ff	șŧ	**	н	19	Br	
2-Chloronaphthalene	ND	0.33	н	Hr	**	*1	ri	H	
2-Nitroaniline	ND	1.65	n	ft	Ef	15	Ħ	**	
Dimethylphthalate	ND	0.33	n	8	Ħ	53	Ħ	**	
Acenaphthylene	ND	0.33	**	***	Ħ	13	št	59	
2,6-Dinitrotoluene	ND	0.33	н	tr	81	+*	**	t t	
3-Nitroaniline	ND	1.65	##	18	R	n	98	f1	
Acenaphthene	ND	0.33	**	81	Ħ	Ħ	f \$	n	

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Jeffrey King, Ph.D., Laboratory Director

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB10 3-4' 15J0975-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note:
		stone Labor	ratories, I	nc Nev	vton				
Determination of Base/Neutral/A	cid Extractable C	ompounds							
2,4-Dinitrophenol	ND		mg/kg dry	1	1K50141	11/01/05	11/02/05	EPA 8270C	
Dibenzofuran	ND	0.33	B	a	85	41	H	tr	
2,4-Dinitrotoluene	ND	0.33	27	19	11	H		+1	
4-Nitrophenol	ND	0.66	11	#9	ž\$	H	#ŧ	Ħ	
Diethyl Phthalate	ND	0.33	#	H	ห	Ħ	R	Ħ	
Fluorene	ND	0.33	11	Ħ	Ħ	U	tt	**	
4-Chlorophenyl Phenyl Ether	ND	0.33	#8	11	##	Ħ	11	tf	
4-Nitroaniline	ND	0.66	H	Ħ	Ħ	H	Ħ	11	
4,6-Dinitro-2-methylphenol	ND	1.65	13	Ħ	Ħ	ff	R	19	
N-Nitrosodiphenylamine	ND	0.33	tt	1†	H	11	**	1f	
Azobenzene	ND	0.33	##	u	Ħ	11	H	18	
4-Bromophenyl Phenyl Ether	ND	0.33	f#	Ħ	Iŧ	29	Ħ	в	
Hexachlorobenzene	ND	0.33	f 1	#	**	11	9 ‡	11	
Pentachlorophenol	ND	0.66	11	Ħ	11	11	łi .	If	
Phenanthrene	ND	0.33	#1	a	Ħ	Ħ	31	bt	
Anthracene	ND	0.33	Ħ	#f	14	ti	11	ti .	
Di-n-butyl Phthalate	ND	0.33	и	н	fl	н	**	R	
Fluoranthene	ND	0.33	24	ŧŧ	iŧ	ē!	#1	क्ष	
Benzidine	ND	0.33	Ħ	ti	11	Ħ	н	H	
Pyrene	ND	0.33	1#	tt	п	**	ŧŧ	11	
Butyl Benzyl Phthalate	ND	0.33	1)	f1	#1	Ħ	Ħ	tr	
Benzo(a)anthracene	ND	0.33	r#	н	11	43	#1	II .	
Chrysene	ND	0.33	11	\$1	ŧ1	ff	H	#1	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	†Ŧ	**		H	Ħ	n	
Di-n-octyl Phthalate	ND	0.33	st	H	89	Ħ	H	#1	
Indeno(1,2,3-cd)Pyrene	ND	0.33	tf	Ħ	15	n	#	Ħ	
3,3'-Dichlorobenzidine	ND	0.66	ff	n	#1	f †	H	Ŧf.	
Benzo(b)Fluoranthene	ND	0.33	H	11	H	kş	78	tf	
Benzo(k)Fluoranthene	ND	0.33	13	81	ř!	Ħ	18	n	
Benzo(a)Pyrene	ND	0.33	H	tł	14	H	п	IF	
Dibenzo(a,h)anthracene	ND	0.33	łt .			**	+17	16	
Benzo(g,h,i)perylene	ND	0.33	11	Ħ	7#	M	(5	Ħ	
Surrogate: 2-Fluorophenol	» - m-	68.5 %	50-1	29	n	η	"	17	
Surrogate: Phenol-d6		110 %	50-1.		77	15	11	u	
Surrogate: 1 nenoi-ao Surrogate: Nitrobenzene-d5		70.9 %	50-1	-	##	11	#	,,	
T		83.6 %	50-1		11	n	se	IP.	
Surrogate: 2-Fluorobiphenyl		03.0 %	JU-1	1 2					

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Deffy King





11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB10 3-4' 15J0975-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
•	Keys	tone Labor:	atories, In	c Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		92.8 %	54-14	0	1K50141	11/01/05	11/02/05	EPA 8270C	
Surrogate: Terphenyl-dl4		105 %	50-12	4	n	Ħ	н	n	
Determination of Physical/Conven	tional Chemistry	Parameters	ş						
% Solids	82.0	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Site 2-SB11 3-4' 15J0975-03 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Key	stone Labor	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	1K50141	11/01/05	11/02/05	EPA 8270C	
Phenol	ND	0.33	b	\$5	E#	n	+1	82	
Aniline	ND	0.33	11	n	Ħ	Ħ	11	ff	
Bis(2-Chloroethyl) Ether	ND	0.33		tt	11	**	ly .	Ħ	
2-Chlorophenol	ND	0.33	ti-	fŧ	Ħ	ŧŧ	Ħ	14	
1,3-Dichlorobenzene	ND	0.33	Ħ	#5	Ħ	н	\$1	В	
1,4-Dichlorobenzene	ND	0.33	ff	13	71	11	15	#1	
Benzyl Alcohol	ND	0.33	"	11	11	n	11	64	
1,2-Dichlorobenzene	ND	0.33	13	#1	H	н	13	8	
2-Methylphenol	ND	0.33	*1	*1	Ħ	Ħ	Ħ	Ħ	
Bis(2-Chloroisopropyl) Ether	ND	0.33	Ħ	H	11	**	n	11	
n-Nitroso-di-n-propylamine	ND	0.33	n	**	н	Ø	41	n	
(3 & 4)-Methylphenol	ND	0.33	н	nt	Ħ	rt	ŧI	bt	
Hexachloroethane	ND	0.33	ŦĮ	11	tí	Ħ	Ħ	11	
Nitrobenzene	ND	0.33	11	5t	и	n.	11	н	
Sophorone	ND	0.33	и	Ħ	**	ri	tt	59	
2-Nitrophenol	ND	0.33	1!	11	u	Ħ	**	Ħ	
2,4-Dimethylphenol	ND	0.33	**	**	41	**	P	13	
Bis(2-Chloroethoxy) Methane	ND	0.33	11	Hr	я	н	41	н	
2,4-Dichlorophenol	ND	0.33	н	ъ	Ħ	Ħ	н	Ħ	
1,2,4-Trichlorobenzene	ND	0.33	Ħ	ŧt.	71	ė!	н	tı	
Naphthalene	ND	0.33	13	#	н	H	*1	в	
4-Chloroaniline	ND	0.33	Ye	#1	11	Ħ	8	19	
Hexachlorobutadiene	ND	0.33	ŧl	İŝ	**	Ħ	#	16	
4-Chloro-3-methylphenol	ND	0.33	+7	ij	19	a	25	9	
2-Methylnaphthalene	ND	0.33	B	**	11	н	**	n	
Hexachlorocyclopentadiene	ND	0.33	87	11	ft	12	#	ŧ	
2,4,6-Trichlorophenol	ND	0.33	11	FF	н	29	t#	19	
2,4,5-Trichlorophenol	ND	1.65	11	tt	+=	11	69	F#	
2-Chloronaphthalene	ND	0.33	#	#	H	57	**	P	
2-Nitroaniline	ND	1.65	#f	#	11	Ħ	н	#	
Dimethylphthalate	ND	0.33	f#	fe	Ħ	57	8	Ħ	
Acenaphthylene	ND	0.33	ri	11	73	16	14	24	
2,6-Dinitrotoluene	ND	0.33	ef	tt	1 *	ы	Ħ	र्श	
3-Nitroaniline	ND	1.65	ž\$	Ħ	н	क्ष	is	Ħ	
Acenaphthene	ND	0.33	Fi	17	11	H₹	25	ft.	

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11153 Aurora Avenue Des Moines 1A, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Site 2-SB11 3-4' 15J0975-03 (Soil)

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	d Extractable C	ompounds							
2,4-Dinitrophenol	ND		mg/kg dry	1	1K50141	11/01/05	11/02/05	EPA 8270C	
Dibenzofuran	ND	0.33	11	n	8	tf	н	#	
2,4-Dinitrotoluene	ND	0.33	Ħ	##	н	ŧi	n	Ħ	
4-Nitrophenol	ND	0.66	11	4	11	**	H	14	
Diethyl Phthalate	ND	0.33	U	11	Ħ	H	Ħ	tt	
Fluorene	ND	0.33	n	fi	Ħ	Ħ	Ħ	#	
4-Chlorophenyl Phenyl Ether	ND	0.33	łī.	H	45	+1	a	и	
4-Nitroaniline	ND	0.66	11	**	н	0	0	¥	
4,6-Dinitro-2-methylphenol	ND	1.65	11	#	н	11	н	45	
N-Nitrosodiphenylamine	ND	0.33	н	rē.	11	Ħ	**	B	
Azobenzene	ND	0.33	"	11	"	0	tt.	+1	
4-Bromophenyl Phenyl Ether	ND	0.33	**	ti	r)	**	h	15	
Hexachlorobenzene	ND	0.33	H	Ħ	łt	В	Ŧŧ	39	
Pentachlorophenol	ND	0.66	Ħ	89	Ħ	***	Ŧł	41	
Phenanthrene	ND	0.33	er .	51	"	1)	n	tr	
Anthracene	ND	0.33	U	11	tì	it	tf	n	
Di-n-butyl Phthalate	ND	0.33	n	Ħ	ŧ	Ħ	*1	Ħ	
Fluoranthene	ND	0.33	Ħ	#	н	17	Ħ	tř	
Benzidine	ND	0.33	11	ft	11	H	17	ti	
Pyrene	ND	0.33	**	ff	f 1) f	Ħ	t+	
Butyl Benzyl Phthalate	ND	0.33	ŧí	Ħ	Ħ	ti	ti .	13	
Benzo(a)anthracene	ND	0.33	Ħ	Ħ	**	11	н	н	
Chrysene	ND	0.33	16	tt	Ħ	н	11	Ħ	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	11	#	11	н	u	12	
Di-n-octyl Phthalate	ND	0.33	Ŧŧ	н	n	12	#	24	
Indeno(1,2,3-cd)Pyrene	ND	0.33	n	14	11	н	11	34	
3,3'-Dichlorobenzidine	ND	0.66	13	ž†	18	B	ŧŧ	н	
Benzo(b)Fluoranthene	ND	0.33	ts	11	ft	н	29	11	
Benzo(k)Fluoranthene	ND	0.33	#\$	h	H	R	H	H.	
Benzo(a)Pyrene	ND	0.33	41	u	+1	**	n	12	
Dibenzo(a,h)anthracene	ND	0.33	11	5 ‡	8	11	14	11	
Benzo(g,h,i)perylene	ND	0.33	#	Ħ	**	iš	Ħ	17	
Surrogate: 2-Fluorophenol		54.4 %	50-1.	29	#	u	"	"	
Surrogate: Phenol-d6		88.1 %	50-1.	32	#	**	#	Ħ	
Surrogate: Nitrobenzene-d5		67.1 %	50-1.	10	Ħ	n	15	n	
Surrogate: 2-Fluorobiphenyl		76.8 %	50-1.		11	"	14	"	

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Montgomery Watson Harza-IA 11153 Aurora Avenue

Des Moines IA, 50322

Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Site 2-SB11 3-4' 15J0975-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	stone Labor:	atories, l	Inc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	ompounds							
Surrogate: 2,4,6-Tribromophenol	, , , , , , , , , , , , , , , , , , ,	70.9 %	54-7	140	1K50141	11/01/05	11/02/05	EPA 8270C	
Surrogate: Terphenyl-dl4		97.4 %	50-1	124	a	H	n	'n	
Determination of Physical/Conven	tional Chemistry	Parameters	S						
% Solids	80.4	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation	······

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB12 3-4' 15J0975-04 (Soil)

		Reporting							
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	-	one Labor	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac						····			
N-Nitrosodimethylamine	ND		mg/kg dry	1.	1K50141	11/01/05	11/03/05	EPA 8270C	
Phenol	ND	0.33	f#	֠	#	n	Ħ	11	
Aniline	ND	0.33	ŧ¥	H	Ħ	17	**	ès	
Bis(2-Chloroethyl) Ether	ND	0.33	‡)	Ħ	Ħ	н	15	29	
2-Chlorophenol	ND	0.33	Œ	11	Ħ	н	H	f2	
1,3-Dichlorobenzene	ND	0.33	11	н	#	tr	и	*1	
1,4-Dichlorobenzene	ND	0.33	t#	U	a	11	it	n	
Benzyl Alcohol	ND	0.33	Ħ	я	Ħ	tr	13	n	
1,2-Dichlorobenzene	ND	0.33	ff.	11	43	le .	#	'n	
2-Methylphenol	ND	0.33	11	u	by	H	n	19	
Bis(2-Chloroisopropyl) Ether	ND	0.33	11	H	41	Ħ	19	sr.	
n-Nitroso-di-n-propylamine	ND	0.33	н	Ħ	ŧŦ	Ħ	Ħ	n	
(3 & 4)-Methylphenol	ND	0.33	et	п	н	tī	Ħ	11	
Hexachloroethane	ND	0.33	H	n	18	11	11	#	
Nitrobenzene	ND	0.33	12	Ħ	n	Ħ	e	ts	
Isophorone	ND	0.33	μ	H	18	н	+1	H	
2-Nitrophenol	ND	0.33	Ħ	it	41	**	19	п	
2,4-Dimethylphenol	ND	0.33	III	3\$	11	H	Ħ	В	
Bis(2-Chloroethoxy) Methane	ND	0.33	Ħ	¥1	n	Ħ	#	Ħ	
2,4-Dichlorophenol	ND	0.33	ıt.	н	15	11	Ħ	18	
1,2,4-Trichlorobenzene	ND	0,33	13	**	(1	**	H	ø	
Naphthalene	ND	0.33	it.	íŧ	B	#	a	11	
4-Chloroaniline	ND	0.33	#	**	it	H	н	H	
Hexachlorobutadiene	ND	0.33	11	н	11	**	ry .	H	
4-Chloro-3-methylphenol	ND	0.33	H	13	u	fi.	н	59	
2-Methylnaphthalene	ND	0.33	k3	E†	rá.	#	n	я	
Hexachlorocyclopentadiene	ND	0.33	+1	49	11	+1	H	u	
2,4,6-Trichlorophenol	ND	0.33	13	11	н	н	(f	+1	
2,4,5-Trichlorophenol	ND	1,65	ti.	0	15	π	н	в	
2-Chloronaphthalene	ND	0.33	r!	ļī.	11	£ŧ	Ħ	53	
Dimethylphthalate	ND	0.33	H	#	**	77	"	**	
2-Nitroaniline	ND	1,65	11	ft	it	Ħ	**	п	
Acenaphthylene	ND	0.33	Ħ	4	54	e	**	F#	
2.6-Dinitrotoluene	ND	0.33	11	šŧ	ės.	Ħ	n	20	
3-Nitroaniline	ND	1.65	**	94	9	BY	n	**	
Acenaphthene	ND	0.33	Ħ	Ħ	#	#2	ri	8	
2 to simplify and	A TANF								

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Fax 641-792-7989

Geffy King





11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB12 3-4' 15J0975-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	•	tone Labor	atories, I	nc Nev	vton			· ·	
Determination of Base/Neutral/Ac	d Extractable Co	ompounds							
2,4-Dinitrophenol	ND		mg/kg dry	į	1K50141	11/01/05	11/03/05	EPA 8270C	
Dibenzofuran	ND	0.33	в	116	51	34	н	13	
2,4-Dinitrotoluene	ND	0.33	1 7	fŧ	H	B	ŧŧ	ft	
4-Nitrophenol	ND	0.66	ŧ*	tt.	u	11	tt	10	
Diethyl Phthalate	ND	0.33	14	ft	Ħ	n	ff	tž	
Fluorene	ND	0.33	ŧf	57	ŦÌ	Ħ	Ħ	11	
4-Chlorophenyl Phenyl Ether	ND	0.33	1 f	15	Ħ	łt ·	Ħ	17	
4-Nitroaniline	ND	0.66	11	**	11	it	16	11	
4,6-Dinitro-2-methylphenol	ND	1.65	ar	ès:	15	н	Ħ	11	
N-Nitrosodiphenylamine	ND	0.33	Ħ	12	Ħ	t ?	Ħ	It	
Azobenzene	ND	0.33	*	11	n	**	19	и	
4-Bromophenyl Phenyl Ether	ND	0.33	D	51	Ħ	Ø	Ħ	п	
Hexachlorobenzene	ND	0.33	‡1	IE	41	B	it	*	
Pentachlorophenol	ND	0.66	11	Ħ	e	H	0	н	
Phenanthrene	ND	0.33	11	Ħ	п	Ħ	н	14	
Anthracene	ND	0.33	p)	ŧĒ	44	Ħ	11	Ħ	
Di-n-butyl Phthalate	ND	0.33	şŧ	Ħ	41	18	8	řŧ.	
Fluoranthene	ND	0.33	,,,	tı	18	**	fŦ	+1	
Benzidine	ND	0.33	rt	ŧr	#	и	#1	et	
Pyrene	ND	0.33	33	Ħ	#	ti	ų	Ħ	
Butyl Benzyl Phthalate	ND	0.33	iş.	સ	Ħ	н	H	Ħ	
Benzo(a)anthracene	ND	0.33	ii.	11	Ħ	**	\$1	в	
Chrysene	ND	0.33	#1	ŧ₹	#1	ŧŧ.	25	17	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	ff	ŧŧ	ti	8	Εŧ	#	
Di-n-octyl Phthalate	ND	0.33	Įf	н	##	B	#	в	
Indeno(1,2,3-cd)Pyrene	ND	0.33	et	н	ti	tf	38	H	
3,3'-Dichlorobenzidine	ND	0.66	ęź	Ħ	16	Ħ	19	#	
Benzo(b)Fluoranthene	ND	0.33	lş	ŧ	Ħ	Ħ	Ħ	æ	
Benzo(k)Fluoranthene	ND	0.33	şt	15	н	†i	ij	Ħ	
Benzo(a)Pyrene	ND	0.33	19	ft	**	н	18	tf	
Dibenzo(a,h)anthracene	ND	0.33	șf.	88	**	Ħ	šŧ	35	
Benzo(g,h,i)perylene	ND	0.33	‡f	r#	ž ý	**	Ħ	择	
Surrogate: 2-Fluorophenol		53.5 %	50-1	29	79	u	"	ze.	
Surrogate: Phenol-d6		73.4 %	50-1	32	н	H	n	#	
Surrogate: Nitrobenzene-d5		68.4 %	50-1	10	fF	#	#	šk	
Surrogate: 2-Fluorobiphenyl		70.6 %	50-1	12	n	et	**	12	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB12 3-4' 15J0975-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labora	atories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		83.4 %	54-1	40	1K50141	11/01/05	11/03/05	EPA 8270C	
Surrogate: Terphenyl-dl4		85.9 %	50-1	24	H	Ħ	#	n	
Determination of Physical/Conventi	onal Chemistry	Parameters	š						
% Solids	83.2	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Site 2-SB13 3-4' 15J0975-05 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
ZAHALYE		stone Labo				rioparca	Anaryzed	wented	Note
Datamain dina of Daga/Norther I/A si			i atomes, i	nc ivev	Yton				
Determination of Base/Neutral/Acid	ND		mg/kg dry	1	1K50141	11/01/02	11/02/07	ED 1 03500	
N-Nitrosodimethylamine	ND ND	0.33	mg/kg ary	1	1K50141	11/01/05	11/03/05	EPA 8270C	
Phenol Aniline	ND ND	0.33	13	#1	15	11	11	81	
			11	"	4	"	11	**	
Bis(2-Chloroethyl) Ether	ND	0.33	13		ŧş	11	rt.		
2-Chlorophenol	ND	0.33	#1	14	Ħ		"	e e	
1,3-Dichlorobenzene	ND	0.33	#	#	er er	#	,	n	
1,4-Dichlorobenzene	ND	0.33	,,	11		11	**	3f	
Benzyl Alcohol	ND	0.33	rr	11	#	11	" H	97	
1,2-Dichlorobenzene	ND	0.33							
2-Methylphenol	ND	0.33	**	B	ft	H	н	#	
Bis(2-Chloroisopropyl) Ether	ND	0.33	**	łt	*1	łt	н	#	
n-Nitroso-di-n-propylamine	ND	0.33	11	tl	11	Ħ	†1	**	
(3 & 4)-Methylphenol	ND	0.33	lt	5†	н	ft	15	в	
Hexachloroethane	ND	0.33	Ħ	Ħ	ie	н	Ħ	11	
Nitrobenzene	ND	0.33	H	H	Ü	**	11	17	
Isophorone	ND	0.33	11	ŧ!	11	श		ы	
2-Nitrophenol	ND	0.33	н	39	ħ	Ħ	10	Ħ	
2,4-Dimethylphenol	ND	0.33	**	н	13	H	#	11	
Bis(2-Chloroethoxy) Methane	ND	0.33	H	18	45	1)	+1	ti	
2,4-Dichlorophenol	ND	0.33	#	it	P		†t	Ħ	
1,2,4-Trichlorobenzene	ND	0.33	11	#	Ħ	Ħ	В	#1	
Naphthalene	ND	0.33	**	ff	a	H	84	11	
4-Chloroaniline	ND	0.33	11	†ŧ	#	**	ės .	94	
Hexachlorobutadiene	ND	0.33	††	ŧŧ	##	Ħ	18	ŧ	
4-Chloro-3-methylphenol	ND	0.33	\$1	Ħ	*1	Ħ	It	tt	
2-Methylnaphthalene	ND	0.33	žŧ.	#1	f 1	н	ti	14	
Hexachlorocyclopentadiene	ND	0.33	14	11	ŧf	Ħ	е	b2	
2,4,6-Trichlorophenol	ND	0.33	ff .	Ħ	#	#	ŧŦ	11	
2,4,5-Trichlorophenol	ND	1.65	? ‡	ft	н	\$1	Ħ	n	
2-Chloronaphthalene	ND	0.33	(1	11	\$1	14	a	N	
2-Nitroaniline	ND	1.65	н	ès	Ħ	##	st	42	
Dimethylphthalate	ND	0.33	н	#	tf	**	н	S	
Acenaphthylene	ND	0.33	##	**	12	Ħ	46	H	
2,6-Dinitrotoluene	ND	0.33	11	25	ęŧ.	58*	ŧ	÷t.	
3-Nitroaniline	ND	1.65	15	и	ŧŧ	ii	я	35	
Acenaphthene	1.33	0.33	1#	ja	**	39	**	FF	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Site 2-SB13 3-4' 15J0975-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Laboi	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	l Extractable C	om pounds							
2,4-Dinitrophenol	ND	1.65	mg/kg dry	1	1K50141	11/01/05	11/03/05	EPA 8270C	
Dibenzofuran	0.56	0.33	#	tì	##	Ħ	71	11	
2,4-Dinitrotoluene	ND	0.33	11	17	11	11	**	а	
4-Nitrophenol	ND	0.66	#f	ff	н	11	Ħ	is:	
Diethyl Phthalate	ND	0.33	11	#	τí	11	**	tř	
Fluorene	0.94	0.33	TP	н	"	+1	16	st	
4-Chlorophenyl Phenyl Ether	ND	0.33	Ħ	15	Ħ	**	41	и	
4-Nitroaniline	ND	0.66	н	tt	tr	H	41	a	
\$,6-Dinitro-2-methylphenol	ND	1.65	Ħ	B	μ	16.	н	P	
N-Nitrosodiphenylamine	ND	0.33	II.	п	4	**	а	77	
Azobenzene	ND	0.33	11	58	н	43	51	11	
4-Bromophenyl Phenyl Ether	ND	0.33	ŧf	ł1	Ħ	35	Ħ	B	
Texachlorobenzene	ND	0.33	н	н	15	Ħ	н	ft	
Pentachlorophenol	ND	0.66	#	11	11	tí	fl	н	
Phenanthrene	8.74	0.33	H	Ħ	e	B	11	Ð	
Anthracene	2.21	0.33	*)	Ħ	В	Ð	Ħ	в	
Di-n-butyl Phthalate	ND	0.33	Ħ	n	ti	Ħ	**	ŧŧ	
Fluoranthene	9.10	0.33	**	"	tf	Ħ	Ħ	n	
Benzidine	ND	0,33	H	Ħ	fŧ	81	f 3	n	
Pyrene	9.85	0.33	Ħ	H	T)	Ħ	#	*t	
Sutyl Benzyl Phthalate	ND	0.33	Ħ	H	14	tt	11	н	
Benzo(a)anthracene	4.09	0.33	18	19	th	Ħ	16	Ŧ¢	
Chrysene	4.23	0.33	##	tf	5 7	13	Ħ	#	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	#	Ħ	н	Ħ	41	f#	
Di-n-octyl Phthalate	ND	0.33	18	н	el	#1	99	**	
ndeno(1,2,3-cd)Pyrene	0.92	0.33	1)	Ħ	19	16	11.	ы	
3,3'-Dichlorobenzidine	ND	0.66	11	83	11	Ħ	8	15	
Benzo(b)Fluoranthene	7.35	0.33	11	Hr	19	n	11	н	
Benzo(k)Fluoranthene	ND	0.33	1 1	tt	tt	It	**	n	
Benzo(a)Pyrene	3.90	0.33	Ħ	H	\$Ŧ	11	ff	14	
Dibenzo(a,h)anthracene	ND	0.33	#	Ħ	łŧ	Ħ	28	n	
Benzo(g,h,i)perylene	1.92	0.33	37	38	Ħ	łŧ	#	н	
Surrogate: 2-Fluorophenol		110 %	50-12	29	#	11	rf	"	
Surrogate: Phenol-d6		112%	50-13	32	15	Ħ	B	EF.	
Surrogate: Nitrobenzene-d5		83.7 %	50-1	10	**	Ħ	"	**	
Surrogate: 2-Fluorobiphenyl		101 %	50-1		15	#	Ħ	Ħ	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Site 2-SB13 3-4' 15J0975-05 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories,	Inc Nev	vton				
Determination of Base/Neutral/Aci	d Extractable Co	ompounds							
Surrogate: 2,4,6-Tribromophenol		83.9 %	54-	140	1K50141	11/01/05	11/03/05	EPA 8270C	
Surrogate: Terphenyl-dl4		99.0 %	50-	124	n	H	"	n	
Determination of Physical/Conven	tional Chemistry	Parameters	;						
% Solids	86.8	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33 Project Manager: Adam Newman

Site 2-SB14 3-4' 15J0975-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
ruidiyio		one Labora			.,	ricparcu	zunny zeu	,viction	INDIC
Determination of Base/Neutral/Acid	•		atui ies, i	11C 17CM	(tuli				
I-Nitrosodimethylamine	ND		ng/kg dry		1K50141	11/01/05	11/03/05	EPA 8270C	
henol	ND	0.33	ii Gradij	14	8	#	11/03/02	E174 0270C	
aniline	ND	0.33		11	#	17	19	11	
bis(2-Chloroethyl) Ether	ND	0.33	#	14	š †	#	†1	н	
-Chlorophenol	ND	0.33	If	Ħ	tf.	я	**	*1	
,3-Dichlorobenzene	ND	0.33	Ħ	tf	#	u	**	**	
.4-Dichlorobenzene	ND ND	0.33	R	76	re	H	н	+1	
enzyl Alcohol	ND	0.33	Ð	46	н	8	11	**	
,2-Dichlorobenzene	ND	0.33	11	н	Ħ	н	в	H	
-Methylphenol	ND	0.33	12	e	t)	0	н	0	
His(2-Chloroisopropyl) Ether	ND	0.33	17	н	н	н	ž3	Ħ	
-Nitroso-di-n-propylamine	ND	0.33	!!	n	H	3	Þ i	11	
3 & 4)-Methylphenol	ND	0.33	11	ft	н	11	*1	II;	
lexachloroethane	ND	0.33	и	ff	17	ff	16	я	
litrobenzene	ND	0.33	ŧı	11	+1	æ	t !	38	
sophorone	ND	0.33	Ħ	11	11	†ŧ	H	fl	
-Nitrophenol	ND	0.33	**	п	11	н	#	39	
,4-Dimethylphenol	ND	0.33	# #	ŧ¥	Ħ	**	н	ft	
is(2-Chloroethoxy) Methane	ND	0.33	11:	Ħ	#	tf.	Ħ	B	
4-Dichlorophenol	ND	0.33	?1	15	tt.	H	U	Ħ	
,2,4-Trichlorobenzene	ND	0.33	f#	н	**	11	11	11	
laphthalene	ND	0.33	f+	н	**	**	11	Ħ	
-Chloroaniline	ND	0.33	38	Ħ	ŧŧ	ŧ	Ħ	8	
exachlorobutadiene	ND	0.33	11		tt.	Ħ	O O	н	
-Chloro-3-methylphenol	ND	0.33	**	15	13	18	19	41:	
-Methylnaphthalene	ND	0.33	n	9	13	85	18	rs	
exachlorocyclopentadiene	ND	0.33	b‡	и	Ħ	43	н	45	
4,6-Trichlorophenol	ND	0.33	13	и	16	n		и	
4,5-Trichlorophenol	ND	1.65	# †	н	51	#	Þ	+5	
Chloronaphthalene	ND	0.33	ři.	8	+1	ь	п	19	
imethylphthalate	ND	0.33	#	,,	18	tt.	17	12	
-Nitroaniline	ND	1.65	75	+)	it	Ħ	**	11	
cenaphthylene	ND	0.33	Ħ	13	я	ft	18	19	
6-Dinitrotoluene	ND	0.33	17	Ħ	*#	14		t+	
-Nitroaniline	ND	1.65	#	tt	re .	tt	11	+1	
cenaphthene	ND	0.33	19	it.	11	#	H	H	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB14 3-4' 15J0975-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
		stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Aci									
2,4-Dinitrophenol	ND		ng/kg dry	1	1K50141	11/01/05	11/03/05	EPA 8270C	
Dibenzofuran	ND	0.33	В	E\$	31	Ħ	17	Ħ	
2,4-Dinitrotoluene	ND	0.33	14	#	a	**	W	H	
4-Nitrophenol	NĐ	0.66	tř	88	H	tt	#	86	
Diethyl Phthalate	ND	0.33	Ħ	8	В	11	ff	н	
Fluorene	ND	0.33	##	Ħ	1\$	n	**	Ħ	
4-Chlorophenyl Phenyl Ether	ND	0.33	fī	H	62	**	Ħ	++	
4-Nitroaniline	ND	0.66	Ħ	33	8	#	38	i)	
4,6-Dinitro-2-methylphenol	ND	1.65	17	ft	н	**	H	st	
N-Nitrosodiphenylamine	ND	0.33	11	**	H	11	16	и	
Azobenzene	ND	0.33	19	łł	17	n	et.	н	
4-Bromophenyl Phenyl Ether	ND	0.33	Ð	tt	Ð	н	18	fi	
Hexachlorobenzene	ND	0.33	fl	18	\$ >	H	11	**	
Pentachlorophenol	ND	0.66	13	H	11	14	zi	a	
Phenanthrene	1.98	0.33) i	Þ	41	11	ŧŧ	šţ	
Anthracene	0.41	0.33	11	н	ft	u	69	**	
Di-n-butyl Phthalate	ND	0.33	11	0	н	(t	а	n	
Fluoranthene	2.15	0.33	16	11	11	н	is	u	
Benzidine	ND	0.33	13	Ħ	ŧı	48	**	11	
Pyrene	2.50	0.33	Ħ	Ħ	Ħ	11	Ħ	14	
Butyl Benzyl Phthalate	ND	0.33	10	Ħ	н	19	Ħ	t#	
Benzo(a)anthracene	0.85	0.33	Ħ	38	Ħ	Ħ	Ħ	ŧŧ	
Chrysene	0.88	0.33	1f	Ħ	##	t≱	Ħ	tf	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	*1	ix	19	**	н	It	
Di-n-octyl Phthalate	ND	0.33	Ħ	B	H	ŧř	#	15'	
Indeno(1,2,3-cd)Pyrene	0.36	0.33	H	#	Ħ	Ħ	1t	55	
3,3'-Dichlorobenzidine	ND	0.66	II	Ħ	Ŧ\$	Ħ	Ħ	н	
Benzo(b)Fluoranthene	1.14	0.33	**	n	35	11	#	12	
Benzo(k)Fluoranthene	ND	0.33	11	Ħ	Ħ	ķš	ŧŦ	п	
Benzo(a)Pyrene	0.86	0.33	Ħ	ŧŧ	н	n	Ħ	Ħ	
Dibenzo(a,h)anthracene	ND	0.33	11	ł3	tf	19	†I	н	
Benzo(g,h,i)perylene	0.52	0.33	1t	#8	18	34	4.5	#	
Surrogate: 2-Fluorophenol		72.7 %	50-12	29	13	Ħ	Ħ	24	
Surrogate: Phenol-d6		100 %	50-1.	32	n	"	"	19	
Surrogate: Nitrobenzene-d5		84.2 %	50-1	10	#	n	24	"	
Surrogate: 2-Fluorobiphenyl		78.1 %	50-I	12	7.6	#	es	17	

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Montgomery Watson Harza-IA 11153 Aurora Avenue

Des Moines IA, 50322

Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Site 2-SB14 3-4' 15J0975-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labora	atories, In	ic Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		79.7%	54-14	0	1K50141	11/01/05	11/03/05	EPA 8270C	
Surrogate: Terphenyl-dl4		104 %	50-12	24	ř.	ff	"	n	
Determination of Physical/Conven	itional Chemistry	Parameters	ì						
% Solids	83.7	0.1	5∕₀	Į	1J52644	10/26/05	10/27/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB15 3-4' 15J0975-07 (Soil)

Phenol	Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
N-Nitrosodimethylamine ND 0.33 mg/kg dry 1 1 KS0141 11/01/05 11/03/05 EPA 8270C Phenol ND 0.33 " " " " " " " " " " " " " " " " " "		Key	stone Labor	ratories, I	nc Nev	vton				
Phenol	Determination of Base/Neutral/A	cid Extractable C	ompounds							
Andiline	N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	IK50141	11/01/05	11/03/05	EPA 8270C	
Section Sect	Phenol	ND	0.33	ŧŧ	Ħ	**	18	ŧ1	16	
A-Chlorophenol ND	Aniline	ND	0.33	44	57	it.	#	n	24	
1,3-Dichlorobenzene ND	Bis(2-Chloroethyl) Ether	ND	0.33	Ħ	#	šŧ	н	ti	B	
1,4-Dichlorobenzene	2-Chlorophenol	ND	0.33	It	9	B)	11	11	ŧŧ	
Benzyl Alcohol ND 0.33 " " " " " " "	1,3-Dichlorobenzene	ND	0.33	11	M	**	**	ŧf	н	
ND 0.33	1,4-Dichlorobenzene	ND	0.33	**	Ħ	rr	n	f#	Ħ	
ND	Benzyl Alcohol	ND	0.33	11	ŧŧ	##	ij	n	Ħ	
Bis(2-Chloroisopropyl) Ether ND 0.33 "	1,2-Dichlorobenzene	ND	0.33	8 3	п	\$ †	Ħ	n	Ħ	
n-Nitroso-di-n-propylamine ND 0.33 " " " " " " " " " " " " " " " " " "	2-Methylphenol	ND	0.33	11	е	**	#1	n	n	
Section Sect	Bis(2-Chloroisopropyl) Ether	ND	0.33	11	11	н	n	Ð	н	
Hexachloroethane	n-Nitroso-di-n-propylamine	ND	0.33	f1	ft.	Ħ	11	tt	ŧf	
Nitrobenzene ND 0.33 " " " " " " " " " " " " " " " " " "	(3 & 4)-Methylphenol	ND	0.33	**	11	Ħ	rt	н	н	
Sephorone ND 0.33 "	Hexachloroethane	ND	0.33	!t	н	(1	Ħ	ы	÷i ·	
Seption Sept	Nitrobenzene	ND	0.33)1	ы	HF .	†I	*1	n	
2-Nitrophenol	Isophorone	ND	0.33	11	н	11	U	0	я	
ND 0.33 "	2-Nitrophenol	ND	0.33	· ·	31	Ħ	5 4	rt	я	
Sis(2-Chloroethoxy) Methane	*	ND	0.33	11	3\$	19	Ą	51	Ťŧ.	
2,4-Dichlorophenol ND 0.33 "		ND	0.33	13	fa	fs	11	Ħ	11	
1,2,4-Trichlorobenzene		ND	0.33	11	h	H	Ħ	b	54	
A-Chloroaniline ND 0.33 """"""""""""""""""""""""""""""""""	1,2,4-Trichlorobenzene	ND	0.33	*1	ij	**	16	н	ЕŖ	
A-Chloroaniline ND 0.33 " " " " " " " " " " " " " " " " " "	Naphthalene	ND	0.33	14	ti .	н	н	H	f3	
A-Chloro-3-methylphenol ND 0.33 " " " " " " " " " " " " " " " " " "	4-Chloroaniline	ND	0.33	18	19	н	P	*1	it	
2-Methylnaphthalene ND 0.33 " " " " " " " " 2,4,6-Trichlorophenol ND 0.33 " " " " " " " " " " " " " " " " " "	Hexachlorobutadiene	ND	0.33	#	#1	Ħ	H	11	ST .	
2-Methylnaphthalene ND 0.33 " " " " " " " " " " " " " " " " " "	4-Chloro-3-methylphenol	ND	0.33	Ħ	Ħ	Ħ	Ħ	8	11	
Hexachlorocyclopentadiene	• •	ND	0.33	**	93	11	#1	17	76	
ND 0.33 "		ND	0.33	16	н	11	8	n	**	
2,4,5-Trichlorophenol		ND	0.33	**	14	T\$	st	9	55	
2-Chloronaphthalene ND 0.33 " " " " " " " " " " " " " " " " " "		ND	1.65	¥ŧ	*1	ŧf	FF	33	я	
Dimethylphthalate	•	ND		#	н	85	75	HE	11	
2-Nitroaniline ND 1.65 " " " " " " " " " " " " " " " " " " "		ND	0.33	19	Ħ	5 4	6	11	\$ †	
Acenaphthylene ND 0.33 " " " " " " " " " " " " " " " " " "	2-Nitroaniline			Ħ	ы	H	13	0	н	
2,6-Dinitrotoluene ND 0.33 " " " " " " " " " " " " " " " " " "				##	46	łt.	EF	54	f1	
3-Nitroaniline ND 1.65 " " " " " "	* *			В	és .	ęt	11	в	13	
	•			28	61	я	11	##	St .	
	Acenaphthene	ND	0.33	1)	45	te	19	н	31	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB15 3-4' 15J0975-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Key	stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Aci	d Extractable C	ompounds							
2,4-Dinitrophenol	ND	1.65	mg/kg dry	1	IK50141	11/01/05	11/03/05	EPA 8270C	
Dibenzofuran	ND	0.33	13	H	H	н	11	ti	
2,4-Dinitrotoluene	ND	0.33	11	н	#	Ħ	P	25	
4-Nitrophenol	ND	0.66	fl	H	n	16	19	н	
Diethyl Phthalate	ND	0.33	Ħ	fi	f ‡	n	15	át .	
Fluorene	ND	0.33	11	u	u	и	и	н	
4-Chlorophenyl Phenyl Ether	ND	0.33	#	B	£+	46	it	ąk	
4-Nitroaniline	ND	0.66	13	tt	85	н	н	Ħ	
4,6-Dinitro-2-methylphenol	ND	1.65	44	Ħ	14	O.	2.0	1)	
N-Nitrosodiphenylamine	ND	0.33	11	н	n	59	н	n	
Azobenzene	ND	0.33	11	Ħ	Ħ	0	b	ft	
4-Bromophenyl Phenyl Ether	ND	0.33	16	Ħ	Ħ	Ħ	Ħ	96	
Hexachlorobenzene	ND	0.33	++	**	19	n	Ħ	16	
Pentachlorophenol	ND	0.66	lt	Ħ	Ħ	н	#	tf	
Phenanthrene	1.98	0.33	11	tį	В	ŧ	11	И	
Anthracene	0.40	0.33	Ħ	łŧ	**	11	н	Ħ	
Di-n-butyl Phthalate	ND	0.33	n	**	#	61	11	Ħ	
Fluoranthene	2.01	0.33	Ħ	##	45	н	*	\$18	
Benzidine	ND	0.33	11	11	Ħ	Ħ	#	11	
Pyrene	2.16	0.33	11	*1	#1	н	н	32	
Butyl Benzyl Phthalate	ND	0.33	Ħ	**	er e	ff	**	н	
Benzo(a)anthracene	0.83	0.33	Ħ	В	B	н	Ħ	39	
Chrysene	0.86	0.33	11	11	#1	19	tt	bī	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	+1	п	bţ	"	**	(1	
Di-n-octyl Phthalate	ND	0.33	it	ri	15	H	43	H	
Indeno(1,2,3-cd)Pyrene	ND	0.33	**	33	88	#t	H	łf	
3,3'-Dichlorobenzidine	ND	0.66	11	75	T#	н	76	FE	
Benzo(b)Fluoranthene	1,06	0.33	1)	**	t #	19	N	TT.	
Benzo(k)Fluoranthene	ND	0.33	#	+1	f!	R	11	Ħ	
Benzo(a)Pyrene	0.76	0.33	†!	11	8	it	H	##	
Dibenzo(a,h)anthracene	ND	0.33	Ħ	*1	Ħ	14	19	te	
Benzo(g,h,i)perylene	0.40	0.33	***	17	ky	Ħ	**	**	
Surrogate: 2-Fluorophenol		94.8 %	50-1.	29	<i>51</i>	r;	Ħ	78	
Surrogate: Phenol-d6		119 %	50-1.	32	"	n	16	n	
Surrogate: Nitrobenzene-d5		81.8 %	50-1		**	"	**	"	
Surrogate: 2-Fluorobiphenyl		99.5 %	50-1		n	er .	#	H	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Site 2-SB15 3-4' 15J0975-07 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor:	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	ompounds							
Surrogate: 2,4,6-Tribromophenol		89.8 %	54-1	40	1K50141	11/01/05	11/03/05	EPA 8270C	
Surrogate: Terphenyl-dl4		104 %	50-1	24	n	"	н	75	
Determination of Physical/Conven	tional Chemistry	Parameters	i						
% Solids	85.5	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-SB16 3-4' 15J0975-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
t	 	tone Labora							- 10000
Determination of Base/Neutral/Ac	*		, ~						
N-Nitrosodimethylamine	ND	0.33 r	ng/kg dry	1	1K50141	11/01/05	11/02/05	EPA 8270C	
Phenol	ND	0.33	Ħ	Ħ	Ħ	Ħ	11	粹	
Aniline	ND	0.33	0	н	ŧŧ	H	н	н	
Bis(2-Chloroethyl) Ether	ND	0.33	tr	11	n	76	tı	U	
2-Chlorophenol	ND	0.33	#t	ir	tł	is	ŧI	es	
1,3-Dichlorobenzene	ND	0.33	11	**	8	в	11	Ħ	
1,4-Dichlorobenzene	ND	0.33	. #	11	33	ř+	н	11	
Benzyl Alcohol	ND	0.33	11	tf	н	п	11	65	
1,2-Dichlorobenzene	ND	0.33	ŧŧ	41	H	n	21	24	
2-Methylphenol	ND	0.33	71	**	a	n	84	11	
Bis(2-Chloroisopropyl) Ether	ND	0.33	н	"	11	**	11	q	
n-Nitroso-di-n-propylamine	ND	0.33	11	11	tł	1)	2\$	н	
(3 & 4)-Methylphenol	ND	0.33	11	Ħ	11	96	8	12	
Hexachloroethane	ND	0.33	11	lą.	"	17	Ħ	*1	
Nitrobenzene	ND	0,33	ir	şá	16	7.5	n	**	
Isophorone	ND	0.33	#1	Ħ	Ħ	**	eş	12	
2-Nitrophenol	ND	0.33	78	ŧ‡	н	Ŧŧ	f 1	ŧt.	
2,4-Dimethylphenol	ND	0.33	tr.	41	n	tī	я	н	
Bis(2-Chloroethoxy) Methane	ND	0.33	#	11	#1	Ħ	**	n	
2,4-Dichlorophenol	ND	0.33	11	9#	в	Ħ	Ħ	ţt.	
1,2,4-Trichlorobenzene	ND	0.33	11	Ħ	H	**	ėş	54	
Naphthalene	ND	0.33	H	**	**	11	19	11	
4-Chloroaniline	ND	0.33	? *	19	15	Вŧ	н	şt	
Hexachlorobutadiene	ND	0.33	ij	Ħ	Ħ	n	Ħ	54	
4-Chloro-3-methylphenol	ND	0.33	н	+2	#	#	25	н	
2-Methylnaphthalene	ND	0.33	**	15	11	PE	н	ū	
Hexachlorocyclopentadiene	ND	0.33	ir	H	is:	#1	75	н	
2,4,6-Trichlorophenol	ND	0.33	В	**	11	15	51	12	
2,4,5-Trichlorophenol	ND	1.65	11	н	6)	ft	n	41	
2-Chloronaphthalene	ND	0.33	19	н	ŧř	*1	68	Þ	
2-Nitroaniline	ND	1.65	Ħ	†±	43	19	\$1	‡ 3	
Dimethylphthalate	ND	0.33	Ħ	11	n	†\$	ŧı	ès	
Acenaphthylene	ND	0.33	67	**	11	69	n	ы	
2,6-Dinitrotoluene	ND	0.33	ŧé	ft.	17	39	15	ŧi	
3-Nitroaniline	ND	1.65	**	36	17	#	ŧſ	55	
Acenaphthene	ND	0.33	16	11	ff	17	19	ft	
Tronquinne	1117	0.55							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Site 2-SB16 3-4' 15J0975-08 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Lynary		tone Labo				repared	Anaryzed	1AICTIIGIT	NOTES
Determination of Base/Neutral/Acid	-		ratories, i	nc Nev	VIUH				
2,4-Dinitrophenol	ND		mg/kg dry		1K50141	11/01/05	11/02/05	EPA 8270C	·····
2,4-Dimurophenoi Dibenzofuran	ND ND	0.33	mg/kg my	1	1KJ9141	11/U1/U3 H	11/02/03	EFA 82 AAC	
2.4-Dinitrotoluene	ND	0.33	11	Ħ	21	н	#1	b r	
4-Nitrophenol	ND ND	0.55	И	Ħ	75	ŧ	ti	M	
Diethyl Phthalate	ND	0.33	11	*1	#	15	16	*1	
Fluorene	ND ND	0.33	¥Ŧ	19	Ħ	Ħ	ft	16	
4-Chlorophenyl Phenyl Ether	ND ND	0.33	1#	В	Ħ	Ħ	ŧI	34	
4-Nitroaniline	ND ND	0.55	If	÷t .	H	**	ы	11	
	ND ND	1.65	tr.	11	H	11	#	Ħ	
4,6-Dinitro-2-methylphenol	ND ND	0.33	ŧ1	*	Ħ	ÌŦ	н	#)	
N-Nitrosodiphenylamine	ND ND	0.33	**	16	Ħ	tt	ŧı.		
Azobenzene			rt	11		11	н	19	
4-Bromophenyl Phenyl Ether	ND	0.33	11	.,				*!	
Hexachlorobenzene	ND	0.33	ł1	ti 	#	,,	14		
Pentachlorophenol	ND	0.66	H	"		**	44	st.	
Phenanthrene	ND	0.33	11	н	16	**	11	н	
Anthracene	ND	0.33	н	19	rt	"	ft	12	
Di-n-butyl Phthalate	ND	0.33	P	72	н	er ke	11	11	
Fluoranthene	ND	0.33	n		.,	**	17	11	
Benzidine	ND	0.33	.,		"	er Li	4	н	
Pyrene	ND	0.33		17 19	18	H	Ħ	22	
Butyl Benzyl Phthalate	ND	0.33							
Benzo(a)anthracene	ND	0.33	11	8 F	#F	\$\$	19	17	
Chrysene	ND	0.33		24	it	rŧ	Ħ	Ħ	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	ti.	13	н	ls .	B	ri .	
Di-n-octyl Phthalate	ND	0.33	#	Ħ	Ħ	#	3 \$	Ħ	
Indeno(1,2,3-cd)Pyrene	ND	0.33	ff	16	Ħ	łł.	н	19	
3,3'-Dichlorobenzidine	ND	0.66	ŧŧ	13	H	н	86	tŧ	
Benzo(b)Fluoranthene	ND	0.33	tt	Ħ	#	Ħ	Ħ	33	
Benzo(k)Fluoranthene	ND	0.33	Ħ	11	**	#1	n	tt	
Benzo(a)Pyrene	ND	0.33	17	58	H*	e e	14	11	
Dibenzo(a,h)anthracene	ND	0.33	If	fl fl	Ħ	#	Ħ	r!	
Benzo(g,h,i)perylene	ND	0.33	lt	ķi	33	11	łf	ef	
Surrogate: 2-Fluorophenol		85.4 %	50-1		a	"	n	"	
Surrogate: Phenol-d6		124 %	50-1	32	#	n	n	n	
Surrogate: Nitrobenzene-d5		90.8 %	50-1	10	re	24	r:	**	
Surrogate: 2-Fluorobiphenyl		103 %	50-1	12	"	"	"	11	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Site 2-SB16 3-4' 15J0975-08 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labora	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		114 %	54-1	40	IK50141	11/01/05	11/02/05	EPA 8270C	
Surrogate: Terphenyl-dl4		132 %	50-1	24	н	řr	n	n	S-BN
Determination of Physical/Conver	itional Chemistry	Parameters	S						
% Solids	84.0	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-Dup-1 15J0975-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labor	atories, I	nc Nev	vton				
Determination of Extractable Petrol	eum Hydrocar	bons							
TEH, as kerosene	ND	5	mg/kg	I	1J53125	10/31/05	11/02/05	Iowa OA-2	M
TEH, as mineral spirits	ND	5	11		H	2.0	10	n	
TEH, as hydraulic fluid	10	5	11	н	15	н	**	+1	D-06
TEH, as gasoline	ND	5	H	ti.	Ħ	8	н	95	
TEH, as #2 diesel fuel	ND	5	tt	n	Ħ	3#	3\$	11	
TEH, as waste oil	ND	5	ft	++	11	tr	1ê	11	
Total Extractable Hydrocarbons	10	5	Ħ	4	15	lt .	Ħ	Ħ	
Surrogate: Pentacosane		57.3 %	50-1	31	H	"	Ħ	n	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-Dup-2 15J0975-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labor	atories, I	nc New	vton				
Determination of Base/Neutral/A	cid Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	1K50141	11/01/05	11/03/05	EPA 8270C	
Phenol	ND	0.33	Ħ	R	Ħ	fŧ	17	13	
Aniline	ND	0.33	tr	**	n	44	11	48	
Bis(2-Chloroethyl) Ether	ND	0.33	n	н	ŧř	Ħ	19	Ħ	
2-Chlorophenol	ND	0.33	h	Ħ	11	H	Ħ	0	
1,3-Dichlorobenzene	ND	0.33	#1	41	77	ff	17	н	
1,4-Dichlorobenzene	ND	0.33	n	tf	ži.	"	37	a	
Benzyl Alcohol	ND	0.33	**	₹E	H	15	'n	Ħ	
1,2-Dichlorobenzene	ND	0.33	11	35	łı	Ħ	it	ė:	
2-Methylphenol	ND	0.33	11	+1	11	11	ls:	n	
Bis(2-Chloroisopropyl) Ether	ND	0.33	11	н	#4	ł!	st	**	
n-Nitroso-di-n-propylamine	ND	0.33	н	+1	u	38	Ħ	Ħ	
(3 & 4)-Methylphenol	ND	0.33	11	**	f #	н	₹ \$	++	
Hexachloroethane	ND	0.33	n	11	H	**	н	19	
Nitrobenzene	ND	0.33	f ‡	#	ŧŧ	Ħ	11	13	
Isophorone	ND	0.33	11	ŧŧ	13	11	ft	#	
2-Nitrophenol	ND	0.33	##	11	**	Ħ	tt	76	
2,4-Dimethylphenol	ND	0.33	88	11	B	18	Ħ	1#	
Bis(2-Chloroethoxy) Methane	NĎ	0.33	Ħ	Ħ	3.5	ŧf	n	Ħ	
2,4-Dichlorophenol	ND	0.33	Ħ	12	Ħ	n	17	7)	
1,2,4-Trichlorobenzene	ND	0.33	11	#	B	19	tt	м	
Naphthalene	ND	0.33	#	H	#	n	tf .	H	
4-Chloroaniline	ND	0.33	11	n	19	14	#	bt	
Hexachlorobutadiene	ND	0.33	14	н	tt	11	Iŧ.	н	
4-Chloro-3-methylphenol	ND	0.33	11	ff	Ħ	н	#1	н	
2-Methylnaphthalene	ND	0.33	Ħ	ŧŧ	a	31	B	#	
Hexachlorocyclopentadiene	ND	0.33	n	n	F#	Ħ	8	и	
2,4,6-Trichlorophenol	ND	0.33	#1	4	15	0	If	44	
2,4,5-Trichlorophenol	ND	1.65	69	н	ft	×	15	я	
2-Chloronaphthalene	ND	0.33	6 1	¥	16	Ð	н	ts	
Dimethylphthalate	ND	0.33	11	**	H	n	п	11	
2-Nitroaniline	ND	1.65	ŧŧ	89	11	e	Ħ	ø	
2-introamme Acenaphthylene	ND	0.33	##	н	n	ы	tr.	н	
Acenaphinylene 2,6-Dinitrotoluene	ND ND	0.33	78	13	45	**	ft	H	
	ND ND	1.65	**	fr	#	Ħ	24	н	
3-Nitroaniline			**	**	н	41	fl	**	
Acenaphthene	ND	0.33							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 11/09/05 13:33

Site 2-Dup-2 15J0975-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	•	stone Labor	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable C	ompounds							
2,4-Dinitrophenol	ND		mg/kg dry	1	1K50141	11/01/05	11/03/05	EPA 8270C	
Dibenzofuran	ND	0.33	11	19	rf	ł!	Ħ	19	
2,4-Dinitrotoluene	ND	0.33	н	+1	Ħ	15	н	17	
4-Nitrophenol	ND	0.66	11	п	\$7	11	41	11	
Diethyl Phthalate	ND	0.33	†I	ft	#	#	e	54	
Fluorene	ND	0.33	Ħ	n	\$I	H	8	Ħ	
4-Chlorophenyl Phenyl Ether	ND	0.33	Ħ	9	U	II	Ħ	н	
4-Nitroaniline	ND	0.66	**	17	tr	11	11	и	
4,6-Dinitro-2-methylphenol	ND	1.65	5 \$	18	И	#1	11	a	
N-Nitrosodiphenylamine	ND	0.33	17	łŦ	#	Ħ	Ħ	n	
Azobenzene	ND	0.33	tt	t f	n	и	*1	n	
4-Bromophenyl Phenyl Ether	ND	0.33	11	łf	स	11	ti	ÉŦ	
Hexachlorobenzene	ND	0.33	Ħ	!	Ħ	Ħ	9	н	
Pentachlorophenol	ND	0.66	11	4F	a	н	18	76	
Phenanthrene	1.18	0.33	+1	16	н	41	11	n	
Anthracene	ND	0.33	ft	P\$	33	11	Ħ	89	
Di-n-butyl Phthalate	ND	0.33	1*	Ħ	н	1f	tř.	**	
Fluoranthene	1.09	0.33	19	18	fţ	11	11	ŧ∓	
Benzidine	ND	0.33	34	31	11	51		R	
Pyrene	1.17	0.33	н	46	19	п	:1	н	
Butyl Benzyl Phthalate	ND	0.33	n	**	8	‡ 5	lit	49	
Benzo(a)anthracene	0.51	0.33	+1	19	11	11	13	Ħ	
Chrysene	0.45	0.33	H	В	Ħ	u	Ħ	н	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	#	Ħ	tş.	13	n	H	
Di-n-octyl Phthalate	ND	0.33	fr .	77	ŧ	r‡	**	Ħ	
Indeno(1,2,3-cd)Pyrene	ND	0.33	H	Ħ	e!	1f	**	11	
3,3'-Dichlorobenzidine	ND	0.66	11	18	tt.	#1	#	н	
Benzo(b)Fluoranthene	0.70	0.33	? 9	ß	H	ŧi	ŧI	я	
Benzo(k)Fluoranthene	ND	0.33	#	9\$	1\$	Ħ	17	44	
Benzo(a)Pyrene	0.47	0.33	#	н	**	W	11	**	
Dibenzo(a,h)anthracene	ND	0.33	**	ft	ft	tt.	31	řž.	
Benzo(g,h,i)perylene	ND	0.33	11	38	52	н	11	16	
Surrogate: 2-Fluorophenol		76.5 %	50-1.	29	#	77	H	n	
Surrogate: Phenol-d6		118 %	50-1.	32	Ħ	"	Ħ	rt .	
Surrogate: Nitrobenzene-d5		73.6 %	50-1	10	**	и	и	н	
Surrogate: 2-Fluorobiphenyl		81.2 %	50-1		n	н	n	12	
эш годия. 2-х хим өнгүнөлүг		Us.# 70	20-1.						

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported:

11/09/05 13:33

Site 2-Dup-2 15J0975-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes		
	Keys	tone Labora	itories, Ii	nc Nev	vton						
Determination of Base/Neutral/Acid	Extractable Co	mpounds									
Surrogate: 2,4,6-Tribromophenol		69.1 %	54-1	40	1K50141	11/01/05	11/03/05	EPA 8270C			
Surrogate: Terphenyl-dl4		101 %	50-12	24	n	#	"	#			
Determination of Physical/Conventional Chemistry Parameters											
% Solids	83.5	0.1	%	1	1J52644	10/26/05	10/27/05	% calculation			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Determination of Extractable Petroleum Hydrocarbons - Quality Control Keystone Laboratories, Inc. - Newton

Prepared & Analyzed: 11/01/05	
ng/kg 2030 95.9 85-115	
" 2020 102 85-115	
* 2020 95.6 85-115	
³ 2010 89.8 85-115	
" 2000 103 85-115	
" 2030 89.7 85-115	
" 52.6 83.3 50-131	
Prepared: 10/31/05 Analyzed: 11/01/05	
ng/kg	/
34	
н	
ñ	
e e	
tt .	
п	
" 2.58 64.0 50-131	
Prepared: 10/31/05 Analyzed: 11/02/05	
ng/kg 502.2 77.0 65-110	
" 2.58 81.8 50-131	
Prepared: 10/31/05 Analyzed: 11/02/05	
ng.	" 2.58 64.0 50-131 Prepared: 10/31/05 Analyzed: 11/02/05 2/kg 502.2 77.0 65-110 2.58 81.8 50-131

2.57

1.95

Keystone Laboratories, Inc. - Newton

Surrogate: Pentacosane

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75.9

50-131

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Montgomery Watson Harza-IA 11153 Aurora Avenue

Des Moines IA, 50322

Project: Jefferson Barracks ANG

Spike

Source

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

RPD

%REC

Determination of Extractable Petroleum Hydrocarbons - Quality Control

Project Manager: Adam Newman

Keystone Laboratories, Inc. - Newton

Reporting

Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 1J53125 - 3545 OA-2 PFE										
Matrix Spike Dup (1J53125-MSD1)	Sour	ce: 15J097	5-01	Prepared:	10/31/05	Analyzed	l: 11/02/05			
TEH, as #2 diesel fuel	340.5	5	mg/kg	500.5	ND	68.0	50-110	10.1	30	
Surrogate: Pentacosane	2.02		n	2.57		78.6	50-131			
Reference (1J53125-SRM1)				Prepared:	10/31/05	Analyzed	1: 11/02/05			
TEH, as #2 diesel fuel	425.6	5	mg/kg	502.2		84.7	70-130			
Surrogate: Pentacosane	2,27		ri	2.58		88.0	50-131			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit Unit	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 15K0315 - 1K50141									
Calibration Check (15K0315-CCV1)			Prepared	& Analyze	ed: 11/02/	05			
N-Nitrosodimethylamine	70.38	mg/kg	wet 45.00		156	80-120			QS-02
Phenol	43.96	16	45.30		97.0	80-120			
Aniline	37.59	ft	42.00		89.5	80-120			
Bis(2-Chloroethyl) Ether	41.86	Ħ	45.00		93.0	80-120			
2-Chlorophenol	46.88	н	44.80		105	80-120			
1,3-Dichlorobenzene	45.12	Ħ	45.00		100	80-120			
I,4-Dichlorobenzene	47.46	ŧI	45.00		105	80-120			
Benzyl Alcohol	46.89	Ħ	45.00		104	80-120			
1,2-Dichlorobenzene	42.72	. **	45.50		93.9	80-120			
2-Methylphenol	51.14	**	45.40		113	80-120			
Bis(2-Chloroisopropyl) Ether	46.14	ŧī	45.00		103	80-120			
n-Nitroso-di-n-propylamine	48.19	B	45.00		107	80-120			
(3 & 4)-Methylphenol	40.47	\$1	45.00		89.9	80-120			
Hexachloroethane	39.79	47	45.00		88.4	80-120			
Nitrobenzene	47.30	11	45.00		105	80-120			
sophorone	47.25	43	45.00		105	80-120			
2-Nitrophenol	48.87	Ħ	45.00		109	80-120			
2,4-Dimethylphenol	45.09	н	45.00		100	80-120			
Bis(2-Chloroethoxy) Methane	48.99	4	45.00		109	80-120			
2.4-Dichlorophenol	44.80	H	44.60		100	80-120			
2.4-Trichlorobenzene	43.11	45	45.00		95.8	80-120			
Naphthalene	44.82	9	42.00		107	80-120			
4-Chloroaniline	43.62	17	42.00		104	80-120			
-lexachlorobutadiene	47.34	н	45.00		105	80-120			
4-Chloro-3-methylphenol	47.76	特	45.00		106	80-120			
2-Methylnaphthalene	43.42	H	45.00		96.5	80-120			
	37.21	**	45.00		82.7	80-120			
2,4,6-Trichlorophenol	44.17	Ĥ	45.00		98.2	80-120			
2,4,5-Trichlorophenol	41,44	**	45.00		92.1	80-120			
2-Chloronaphthalene	43.13	#	45.00		95.8	80-120			
2-Nitroaniline	38.64	η	42.00		92.0	80-120			
Dimethylphthalate	43.28	99	45.00		96.2	80-120			
Acenaphthylene	39.89	Ħ	42.00		95.0	80-120			
2,6-Dinitrotoluene	44.60	я	45.00		99.1	80-120			
3-Nitroaniline	42.28	ŧŧ	42.00		101	80-120			
Acenaphthene	43.76	я	42.00		104	80-120			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

										
		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch	15K031	5 - 1	K501	41

Calibration Check (15K0315-CCV1)			Prepared & An	alyzed: 11/02.	/05	
2,4-Dinitrophenol	45.44	mg/kg wet	45.00	101	80-120	
Dibenzofuran	41.83	17	45.00	93.0	80-120	
2,4-Dinitrotoluene	42.04	Ħ	45.00	93.4	80-120	
4-Nitrophenol	38.98	Ħ	45.00	86.6	80-120	
Diethyl Phthalate	46.75	11	45.00	104	80-120	
Fluorene	40.78	и	42.00	97.1	80-120	
4-Chlorophenyl Phenyl Ether	42.72	Ħ	45:00	94.9	80-120	
4-Nitroaniline	32.09	н	42.00	76.4	80-120	QR-0
4,6-Dinitro-2-methylphenol	49.47	11	45.00	110	80-120	
N-Nitrosodiphenylamine	47.07	н	45.00	105	80-120	
Azobenzene	39.30	u	42.00	93.6	80-120	
4-Bromophenyl Phenyl Ether	42.20	11	45.00	93.8	80-120	
Hexachlorobenzene	47.74	**	45.00	106	80-120	
Pentachlorophenol	47.01	ıt	45.00	104	80-120	
Phenanthrene	42.15	ŧŧ	42.00	100	80-120	
Anthracene	47.44	16	42.00	113	80-120	
Di-n-butyl Phthalate	52.51	и	45.00	117	80-120	
Fluoranthene	37.01	и	42.00	88.1	80-120	
Benzidine	92.22	Þ¥	90.00	102	80-120	
Pyrene	41.70	l t	42.00	99.3	80-120	
Butyl Benzyl Phthalate	56.74	Ħ	45.00	126	80-120	QS-0
Benzo(a)anthracene	41.54	11	42.00	98.9	80-120	
Chrysene	41.65	ti	42.00	99.2	80-120	
Bis(2-Ethylhexyl) Phthalate	59.02	11	45.00	131	80-120	QS-0
Dí-n-octyf Phthalate	50.95	11	45.00	113	80-120	
Indeno(1,2,3-cd)Pyrene	38.33	11	42.00	91.3	80-120	
3,3'-Dichlorobenzidine	67.40	31	90.00	74.9	80-120	QR-0
Benzo(b)Fluoranthene	47.01	tt.	42.00	112	80-120	
Benzo(k)Fluoranthene	39.38	at	42.00	93.8	80-120	
Benzo(a)Pyrene	41.99	11	42.00	100	80-120	
Dibenzo(a,h)anthracene	42.50	ਮ	42.00	101	80-120	
Benzo(g,h,i)perylene	44.58	н	42.00	106	80-120	
Surrogate: 2-Fluorophenol	38.00	"	42.10	90.3	50-129	
Surrogate: Phenol-d6	43.42	n	42.40	102	50-132	
Surrogate: Nitrobenzene-d5	41.82	"	41.20	102	50-110	
Surrogate: 2-Fluorobiphenyl	42.15	#	41.70	101	50-112	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 15K0315 - 1K50141

Calibration Check (15K0315-CCV1)		İ	Prepared & A	Analyzed: 11/02/0)5	
Surrogate: 2,4,6-Tribromophenol	38.47	mg/kg wet	41.80	92.0	54-140	
Surrogate: Terphenyl-dl4	46.71	n	41.30	113	50-124	

Batch 1K50141 - 3545 BNA PFE

Blank (1K50141-BLK1)			Prepared: 11/01/05 Analyzed: 11/02/05
N-Nitrosodimethylamine	ND	0.33 n	mg/kg wet
Phenof	ND	0.33	H
Aniline	ND	0.33	Ħ
Bis(2-Chloroethyl) Ether	ND	0.33	ff
2-Chlorophenol	ND	0.33	ti
1,3-Dichlorobenzene	ND	0.33	n
1,4-Dichlorobenzene	ND	0.33	tt .
Benzyl Alcohol	ND	0.33	U
1,2-Dichlorobenzene	ND	0.33	н
2-Methylphenol	ND	0.33	н
Bis(2-Chloroisopropyl) Ether	ND.	0:33	н
n-Nitroso-di-n-propylamine	ND	0.33	II.
(3 & 4)-Methylphenol	ND	0.33	n
Hexachloroethane	ND	0.33	н
Nitrobenzene	ND	0.33	h
Isophorone	ND	0.33	N
2-Nitrophenol	ND	0.33	fi .
2,4-Dimethylphenol	ND	0.33	ti .
Bis(2-Chloroethoxy) Methane	ND	0.33	8
2,4-Dichlorophenol	ND	0.33	Ħ
1,2,4-Trichlorobenzene	ND	0.33	η
Naphthalene	ND	0.33	rt .
4-Chloroaniline	ND	0.33	11
Hexachlorobutadiene	ND	0.33	9
4-Chloro-3-methylphenol	ND	0.33	19
2-Methylnaphthalene	ND	0.33	н
Hexachlorocyclopentadiene	ND	0.33	e e
2,4,6-Trichlorophenol	ND	0.33	tt.
2,4,5-Trichlorophenol	ND	1.65	Ħ
2-Chloronaphthalene	ND	0.33	Ĥ.
2-Nitroaniline	ND	1.65	п

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

f .			***************************************		,	************	·····		
	Reporting		Spike	Source		%REC		RPD	
Analyte Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch	1K501	41 _	3545	RNA	PEF
132111 11	113.7011		3. 42.3	1111776	F F F

Blank (1K50141-BLK1)		Prepared: 11/01/05 Analyzed: 11/02/05									
Dimethylphthalate	ND	0.33	ng/kg wet	***************************************							
Acenaphthylene	ND	0.33	 11								
2,6-Dinitrotoluene	ND	0.33	Ð								
3-Nitroaniline	ND	1.65	я								
Acenaphthene	ND	0.33	#								
2,4-Dinitrophenol	ND	1.65	it .								
Dibenzofuran	ND	0.33	н								
2,4-Dinitrotoluene	ND	0.33	π								
4-Nitrophenol	ND	0.66	n .								
Diethyl Phthalate	ND	0.33	ri -								
Fluorene	ND	0.33	n								
4-Chlorophenyl Phenyl Ether	ND	0.33	И								
4-Nitroaniline	ND	0.66	ff.								
4,6-Dinitro-2-methylphenol	ND	1.65	π								
N-Nitrosodiphenylamine	ND	0.33	и								
Azobenzene	ND	0.33	н								
4-Bromophenyl Phenyl Ether	ND	0.33	H .								
Hexachlorobenzene	ND	0.33	п								
Pentachlorophenol	ND	0.66	Ð								
Phenanthrene	ND	0.33	8								
Anthracene	ND	0.33	и								
Di-n-butyl Phthalate	ND	0.33	И								
Fluoranthene	ND	0.33	и								
Benzidine	ND	0.33	tt								
Pyrene	ND	0.33	ij								
Butyl Benzyl Phthalate	ND	0.33	19								
Benzo(a)anthracene	ND	0.33	rt								
Chrysene	ND	0.33	В								
Bis(2-Ethylhexyl) Phthalate	ND	0.33	q								
Di-n-octyl Phthalate	ND	0.33	(f								
Indeno(1,2,3-cd)Pyrene	ND	0.33	я								
3,3'-Dichlorobenzidine	ND	0.66	H								
Benzo(b)Fluoranthene	ND	0.33	я								
Benzo(k)Fluoranthene	ND	0.33	ti .								
Benzo(a)Pyrene	ND	0.33	н								
Dibenzo(a,h)anthracene	ND	0.33	¥								

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Spike

Source

%REC

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

RPD

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Reporting

Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 1K50141 - 3545 BNA PFE				*******						
Blank (1K50141-BLK1)				Prepared:	11/01/05	Analyzed	: 11/02/05			
Benzo(g,h,i)perylene	ND	0.33	mg/kg wet		**************************************	***************************************				- A-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-
Surrogate: 2-Fluorophenol	1.866		B	3.000		62.2	50-129			
Surrogate: Phenol-d6	2.982		#	3.050		97.8	50-132			
Surrogate: Nitrobenzene-d5	2.048		n	3.000		68.3	50-110			
Surrogate: 2-Fluorobiphenyl	2.816		n	3.050		92.3	50-112			
Surrogate: 2,4,6-Tribromophenol	3.130		21	3.050		103	54-140			
Surrogate: Terphenyl-dl4	3.716		ff	3.017		123	50-124			
LCS (1K50141-BS1)				Prepared:	11/01/05	Analyzed	: 11/02/05			
Phenol	1.686	0.33	mg/kg wet	1.900		88.7	50-127			
2-Chlorophenol	1.922	0.33	tt .	2.073		92.7	50-110			
1,3-Dichlorobenzene	2.293	0.33	Ħ	2.873		79.8	60-140			
1,4-Dichlorobenzene	1.736	0.33	Ħ	2.357		73.7	50-110			
1,2-Dichlorobenzene	1.969	0.33	#	2.907		67.7	60-140			
2-Methylphenol	1.251	0.33	n	1.693		73.9	63-136			
n-Nitroso-di-n-propylamine	2.499	0.33	38	2.513		99.4	50-119			
(3 & 4)-Methylphenol	1.576	0.33	Ħ	2.040		77.3	50-110			
Hexachloroethane	1.703	0.33	łŧ	2,400		71.0	50-130			
Nitrobenzene	2.425	0.33	11	2.683		90.4	50-113			
2-Nitrophenol	1.604	0.33	ft	1.867		85.9	50-125			
2,4-Dimethylphenol	1.533	0.33	Ħ	2.027		75.6	60-140			
2,4-Dichlorophenol	1.754	0.33	ħ	2.260		77.6	60-140			
1,2,4-Trichlorobenzene	2.261	0.33	Ħ	3.120		72.5	73-114			QS-0
Naphthalene	2.133	0.33	H	2.457		86.8	60-140			
Hexachlorobutadiene	2.007	0.33	##	2.783		72.1	60-140			
4-Chloro-3-methylphenol	1.659	0.33	#P	1.980		83.8	58-122			
2,4,6-Trichlorophenol	2.460	0.33	19	2.787		88.3	79-125			
2,4,5-Trichlorophenol	1.670	1.65	n	2.000		83.5	60-140			
Dimethylphthalate	2.695	0.33	ŧŧ	2.923		92.2	61-110			
Acenaphthylene	1.773	0.33	ŧŧ	2.273		78.0	63-133			
2,6-Dinitrotoluene	1.937	0.33	n	2.437		79.5	50-121			
Acenaphthene	2.993	0.33	r#	3.167		94.5	60-140			
2,4-Dinitrophenol	0.971	1.65	H	1.609		60.3	60-140			
2,4-Dinitrotoluene	2.574	0.33	ės.	2.570		100	60-140			
4-Nitrophenol	1.977	0.66	3 1	2.507		78.9	53-140			
Diethyl Phthalate	2.612	0.33	Ħ	2.660		98.2	62-113			
Fluorene	2.104	0.33	**	2.357		89.3	50-138			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Project Manager: Adam Newman

1.394 2.416 1.736 2.498 2.113 2.811 4.149 3.321 2.855 1.707 3.193	1.65 0.33 0.66 0.33 0.33 0.33 0.33 0.33	mg/kg wet		11/01/05	Analyzed 78.0 101 80.6 103 91.4	51-138 60-140 58-139 71-112	***************************************		Marine (1944)
2.416 1.736 2.498 2.113 2.811 4.149 3.321 2.855 1.707 3.193	0.33 0.66 0.33 0.33 0.33 0.33 0.33	19 19 21 14 15 15	1.787 2.400 2.153 2.437 2.313 2.680	11/01/05	78.0 101 80.6 103	51-138 60-140 58-139 71-112	***************************************		
2.416 1.736 2.498 2.113 2.811 4.149 3.321 2.855 1.707 3.193	0.33 0.66 0.33 0.33 0.33 0.33 0.33	19 19 21 14 15 15	2.400 2.153 2.437 2.313 2.680		101 80.6 103	60-140 58-139 71-112			
1.736 2.498 2.113 2.811 4.149 3.321 2.855 1.707 3.193	0.66 0.33 0.33 0.33 0.33 0.33	22 14 13	2.153 2.437 2.313 2.680		80.6 103	58-139 71-112			
2.498 2.113 2.811 4.149 3.321 2.855 1.707 3.193	0.33 0.33 0.33 0.33 0.33	22 14 13	2.437 2.313 2.680		103	71-112			
2.113 2.811 4.149 3.321 2.855 1.707 3.193	0.33 0.33 0.33 0.33	19 13 59	2.313 2.680						
2.811 4.149 3.321 2.855 1.707 3.193	0.33 0.33 0.33 0.33	13	2.680		91.4				
4.149 3.321 2.855 1.707 3.193	0.33 0.33 0.33	81				50-110			
3.321 2.855 1.707 3.193	0.33 0.33		5.067		105	50-139			
2.855 1.707 3.193	0.33	11			81.9	57-118			
1,707 3,193			3.323		99.9	50-110			
3.193	A 33	14	2.790		102	60-140			
	ひょうき	†1	2.727		62.6	50-137			
	0.33	Ħ	2.923		109	60-140			
2.375	0.33	น	2.423		98.0	60-140			
2.442	0.33	н	2.323		105	60-140			
2.082	0.33	11	2.457		84.7	50-137			
2.110		n	3,000		70.3	50-129			
2.860		н	3.050		93.8	50-132			
2.502		15	3.000		83.4	50-110			
2.911		H	3.050		95.4	50-112			
3.210		17	3.050		105	54-140			
3.064		Ħ	3.017		102	50-124			
Sor	irce: 15.1097	75-02	Prepared:	11/01/05	Analyzed:	11/02/05			
						**************************************			.***
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		13							
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		r#							
	2.110 2.860 2.502 2.911 3.210 3.064	2.110 2.860 2.502 2.911 3.210 3.064 Source: 15J097 2.243 0.33 2.315 0.33 2.668 0.33 1.972 0.33 2.283 0.33 1.560 0.33 3.275 0.33 2.048 0.33 2.121 0.33 2.121 0.33 2.807 0.33 1.825 0.33 1.101 0.33 1.800 0.33 2.402 0.33	2.110 " 2.860 " 2.502 " 2.911 " 3.210 " 3.064 " Source: 15J0975-02 2.243 0.33 mg/kg dry 2.315 0.33 " 2.668 0.33 " 1.972 0.33 " 2.283 0.33 " 1.560 0.33 " 2.283 0.33 " 2.284 0.33 " 2.121 0.33 " 2.121 0.33 " 2.121 0.33 " 1.825 0.33 " 1.825 0.33 " 1.800 0.33 " 1.800 0.33 "	2.110 " 3.000 2.860 " 3.050 2.502 " 3.000 2.911 " 3.050 3.210 " 3.050 3.064 " 3.017 Source: 15J0975-02 Prepared: 2.243 0.33 mg/kg dry 2.315 2.315 0.33 " 2.526 2.668 0.33 " 3.501 1.972 0.33 " 2.871 2.283 0.33 " 3.541 1.560 0.33 " 2.063 3.275 0.33 " 2.063 3.275 0.33 " 3.062 2.048 0.33 " 2.485 2.121 0.33 " 2.485 2.121 0.33 " 2.924 2.807 0.33 " 3.269 1.825 0.33 " 3.269 1.825 0.33 " 2.274 1.101 0.33 " 2.469 1.800 0.33 " 2.753 2.402 0.33 " 3.801	2.110	2.110	2.110 " 3.000 70.3 50-129 2.860 " 3.050 93.8 50-132 2.502 " 3.000 83.4 50-110 2.911 " 3.050 95.4 50-112 3.210 " 3.050 105 54-140 3.064 " 3.017 102 50-124 Source: 15J0975-02 Prepared: 11/01/05 Analyzed: 11/02/05 2.243 0.33 mg/kg dry 2.315 ND 96.9 50-127 2.315 0.33 " 2.526 ND 91.6 50-110 2.668 0.33 " 3.501 ND 76.2 60-140 1.972 0.33 " 2.871 ND 68.7 50-121 2.283 0.33 " 3.541 ND 64.5 60-140 1.560 0.33 " 2.063 ND 75.6 63-136 3.275 0.33 " 2.485 ND 82.4 50-110 2.121 0.33 " 2.924 </td <td>2.110</td> <td>2.110</td>	2.110	2.110

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

			Reporting		Spike	Source		%REC		RPD	
Àι	nalyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Datah	1K501	41	2545	DNA	DET
KMICH	1 10 7111	41 -	3747	1 1 A	PRE.

Matrix Spike (1K50141-MS1)	Source: 15	J097	5-02	Prepared:	11/01/05	Analyzed:	11/02/05
Hexachlorobutadiene 2.1	10 ().33	mg/kg dry	3.391	ND	62.2	60-140
4-Chloro-3-methylphenol 1.92	25 0).33	H	2.412	ND	79.8	58-122
2,4,6-Trichlorophenol 2.84	12 ().33	9	3.395	ND	83.7	76-131
2,4,5-Trichlorophenol 1.80)9 1	.65	E	2.437	ND	74.2	60-140
Dimethylphthalate 3.08	39 ().33	#1	3.561	ND	86.7	63-128
Acenaphthylene 2.16	57 6	3.33	n	2.770	ND	78.2	63-133
2,6-Dinitrotoluene 2.61	13 0).33	R	2.969	ND	88.0	59-117
Acenaphthene 3.68	39 0	.33	16	3.858	ND	95.6	60-140
2,4-Dinitrophenol 1.33	72 1	.65	Ħ	1.961	ND	70.0	60-140
2,4-Dinitrotoluene 2.82	27 0	.33	н	3.131	ND	90.3	60-140
4-Nitrophenol 2.65	53).66	H	3.054	ND	86.9	53-140
Diethyl Phthalate 2.94	15 0).33	n	3.241	ND	90.9	54-140
Fluorene 2.71	18 €	33	ŧş	2.871	ND	94.7	50-124
4,6-Dinitro-2-methylphenol 1.92	20 1	.65	н	2.177	ND	88.2	51-138
Hexachlorobenzene 2.74	12 0).33	ti.	2.924	ND	93.8	60-140
Pentachlorophenol 2.13	32 0	.66	tt	2.623	ND	81.3	58-139
Phenanthrene 2.68	37 0	.33	\$1	2.969	ND	90.5	65-138
Anthracene 2.49	95 0	.33	56	2.818	ND	88.5	50-136
Di-n-butyl Phthalate 3.32	23 0	1.33	+1	3.265	ND	102	50-139
Fluoranthene 4.67	75 0	1.33	**	6.173	ND	75.7	50-118
Pyrene 4.09	96 0	1.33	t+	4.049	ND	101	50-124
Butyl Benzyl Phthalate 3.56	56 0	.33	н	3.399	ND	105	60-140
Chrysene 2.04	15 0	.33	ft	3.322	ND	61.6	50-137
Bis(2-Ethylhexyl) Phthalate 4.15	57 0	.33	11	3.561	ND	117	60-140
Benzo(b)Fluoranthene 2.82	26 0	.33	h	2,952	ND	95.7	60-140
Benzo(k)Fluoranthene 2.76	52 0	.33	++	2.831	ND	97.6	60-140
Benzo(a)Pyrene 2.56	55 0	.33	#	2.993	ND	85.7	50-137
Surrogate: 2-Fluorophenol 2.61	7		Ħ	3.655		71.4	50-129
Surrogate: Phenol-d6 3.46	55		"	3.716		93.2	50-132
Surrogate: Nitrobenzene-d5 3.06	<i>9</i>		tf	3.655		84.0	50-110
Surrogate: 2-Fluorobiphenyl 3.00	17		н	3.716		80.9	50-112
Surrogate: 2,4,6-Tribromophenol 3.52	25		ff.	3.716		94.9	54-140
Surrogate: Terphenyl-dl4 3.45	1		#	3.675		93.9	50-124

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K50141 - 3545 BNA PFE										
** ** * * * * ** *********************		1# 100#	- 00	n	11/01/05	à . 1	11/00/05			

Matrix Spike Dup (1K50141-MSD1)	Sour	rce: 15J09	75-02	Prepared:	11/01/05	Analyzed	1: 11/02/05			
Phenol	2.453	0.33	mg/kg dry	2.317	ND	106	50-127	8.94	20	V-0.
2-Chlorophenol	2.295	0.33	Ħ	2.528	ND	90.8	50-110	0.868	24	
1,3-Dichlorobenzene	2.501	0.33	17	3.504	ND	71.4	60-140	6.46	40	
1,4-Dichlorobenzene	1.728	0.33	19	2.874	ND	60.1	50-121	13.2	16	
1,2-Dichlorobenzene	2.379	0.33	44	3.545	ND	67.1	60-140	4.12	40	
2-Methylphenol	1.470	0.33	H	2.065	ND	71.2	63-136	5.94	22	
n-Nitroso-di-n-propylamine	3.584	0.33	tr	3.065	ND	117	50-139	9.01	17	
(3 & 4)-Methylphenol	1.820	0.33	Ħ	2.488	ND	73.2	50-110	11.8	29	
Hexachloroethane	1.951	0.33	n	2.927	ND	66.7	50-130	8.35	20	
Nitrobenzene	2.701	0.33	ef	3.272	ND	82.5	50-132	3,85	19	
2-Nitrophenol	1.912	0.33	Ħ	2.276	ND	84.0	50-125	4.66	24	
2,4-Dimethylphenol	0.791	0.33	0	2.472	ND	32.0	60-140	32.8	40	QM-0
2,4-Dichlorophenol	1.933	0.33	P\$	2.756	ND	70.1	60-140	7.13	40	
1,2,4-Trichlorobenzene	2.439	0.33	tt	3.805	ND	64.1	54-115	1.53	20	
Naphthalene	2.175	0.33	В	2.996	ND	72.6	60-140	3,57	40	
Hexachlorobutadiene	2.014	0.33	Ħ	3.394	ND	59.3	60-140	4.66	40	QM-0
4-Chloro-3-methylphenol	2.139	0.33	я	2.415	ND	88.6	58-122	10.5	24	
2,4,6-Trichlorophenol	2.915	0.33	ŧτ	3.398	ND	85.8	76-131	2.54	15	
2,4,5-Trichlorophenol	2.023	1.65	17	2.439	ND	82.9	60-140	11.2	40	
Dimethylphthalate	3.086	0.33	₹#	3.565	ND	86.6	63-128	0.0972	24	
Acenaphthylene	2.176	0.33	ä	2.772	ND	78.5	63-133	0.414	26	
2,6-Dinitrotoluene	2.614	0.33	fŧ	2.972	ND	88.0	59-117	0.0383	28	
Acenaphthene	3.530	0.33	9	3.862	ND	91.4	60-140	4.41	10.1	
2,4-Dinitrophenol	1.907	1.65	b	1.963	ND	97.1	60-140	32.6	40	
2,4-Dinitrotoluene	3.022	0.33	ŧ	3.134	ND	96.4	60-140	6.67	40	
4-Nitrophenol	3.293	0.66	15	3.057	ND	108	53-140	21.5	20	QR-02
Diethyl Phthalate	2.930	0.33	11	3.244	ND	90.3	54-140	0.511	28	
Fluorene	2.585	0.33	11	2.874	ND	89.9	50-124	5.02	30	
4,6-Dinitro-2-methylphenol	2.117	1.65	is.	2.179	ND	97.2	51-138	9.76	22	
Hexachlorobenzene	2.850	0.33	я	2.927	ND	97.4	60-140	3.86	40	
Pentachlorophenol	2.397	0.66	34	2.626	ND	91.3	58-139	11.7	30	
Phenanthrone	2.629	0.33	tf	2.972	ND	88.5	65-138	2.18	22	
Anthracene	2.469	0.33	+1	2.821	ND	87.5	50-136	1.05	30	
Di-n-butyl Phthalate	3.049	0.33	#	3.268	ND	93.3	50-139	8.60	22	
Fluoranthene	4.668	0.33	31	6.179	ND	75.5	50-118	0.150	24	
Pyrene	3.551	0.33	P	4.053	ND	87.6	50-124	14.3	30	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Chrysene	Notes
Butyl Benzyl Phthalate 2.902	
Chrysene	
Bis(2-Ethylhexyl) Phthalate 3.599 0.33 " 3.565 ND 101 60-140 14.4 40 Benze(b)Fluoranthene 2.559 0.33 " 2.955 ND 86.6 60-140 9.92 40 Benze(b)Fluoranthene 2.677 0.33 " 2.833 ND 94.5 60-140 3.13 40 Benze(b)Fluoranthene 2.677 0.33 " 2.833 ND 94.5 60-140 3.13 40 Benze(b)Fluoranthene 2.677 0.33 " 2.833 ND 94.5 60-140 3.13 40 Benze(b)Fluoranthene 2.492 " 3.659 ND 77.0 50-137 10.6 30 Surrogate: 2-Fluorophenol 3.897 " 3.720 105 50-132 Surrogate: 2-Fluorophened 3.897 " 3.720 72.6 50-112 Surrogate: 2-Fluorophenel 3.338 " 3.720 72.6 50-112 Surrogate: 2-Fluorophenel 3.338 " 3.720 72.6 50-112 Surrogate: 2-Fluorophenel 2.844 " 3.679 77.3 50-124 Surrogate: 2-Fluorophenel 2.844 " 3.679 77.3 50-124 February 3.679 77.3 50-124 February 4.844 " 3.679 77.3 50-124 February 5.444 " 3.679 77.3 50-124 February 6.45141-SRM1 70-130 February 7.4514	
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Surrogate: 2-Fluorobipheryl 2.702 " 3.720 72.6 50-112 Surrogate: 2,4,6-Tribromophenol 3.338 " 3.679 77.3 50-124 Reference (1K50141-SRMI) Prepared: 11/01/05 Analyzed: 11/03/05 Phenol 1.971 0.33 mg/kg wet 1.900 104 70-130 2-Chlorophenol 2.131 0.33 " 2.073 103 70-130 1,4-Dichlorobenzene 2.339 0.33 " 2.357 91.3 70-130 1,2-Dichlorobenzene 3.752 0.33 " 2.907 129 70-130 1,2-Dichlorobenzene 3.752 0.33 " 2.907 129 70-130 2-Methylphenol 2.031 0.33 " 2.907 129 70-130 n-Nitroso-di-n-propylamine 3.282 0.33 " 2.400 86.5 70-130 n-Washlylphenol 1.765 0.33 " 2.400 111 70-130 Hexachloroethane 1.818 0.33 " 2.683 73.7 70-130 Nitrobenzene 1.978 0.33 " 2.0207 85.4 70-130 2-Nitr	
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2,4,6-Trichlorophenol 2.303 0.33 " 2.787 82.6 70-130	
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Dimethylphthalate 2.660 0.33 " 2.923 91.0 70-130	
Acenaphthylene 1.740 0.33 " 2.273 76.6 70-130	
2,6-Dinitrotoluene 2.146 0.33 " 2.437 88.1 70-130	

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Acenaphthene

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

70-130

88.0

Jeffrey King, Ph.D., Laboratory Director

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3.167

0.33

2.788





11153 Aurora Avenue Des Moines IA, 50322

Analyte

Project: Jefferson Barracks ANG

Spike

Level

3.000

3.050

3.050

3.017

Source

Result

%REC

88.2

78.2

105

85.5

50-110

50-112

54-140

50-124

%REC

Limits

RPD

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

RPD

Limit

Notes

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Units

Reporting

Result

2.645

2.384

3.200

2.579

Limit

Reference (1K50141-SRM1)				Prepared: 11/0	01/05 Analyzed	i: 11/03/05	
2,4-Dinitrophenol	1.826	1.65 n	ng/kg wet	1.610	113	70-130	
2,4-Dinitrotoluene	2.336	0.33	tf	2.570	90.9	70-130	
4-Nitrophenol	2.239	0.66	tt	2.507	89.3	70-130	
Diethyl Phthalate	2.375	0.33	H	2.660	89.3	70-130	
Fluorene	2.225	0.33	11	2.357	94.4	70-130	
4,6-Dinitro-2-methylphenol	1.473	1.65	И	1.787	82.4	70-130	
Hexachlorobenzene	1.855	0.33	tř	2.400	77.3	70-130	
Pentachlorophenol	1.984	0.66	er	2.153	92.2	70-130	
Phenanthrene	2.084	0.33	0	2.437	85.5	70-130	
Anthracene	1.960	0.33	н	2.313	84.7	70-130	
Di-n-butyl Phthalate	2.083	0.33	41	2.680	77.7	70-130	
Fluoranthene	3.495	0.33	it	5.067	69.0	70-130	QR-0:
Ругепе	3.083	0.33	FF	3.323	92.8	70-130	
Butyl Benzyl Phthalate	2.501	0.33	Ħ	2.790	89.6	70-130	
Chrysene	1.695	0.33	#	2.727	62.2	70-130	QR-0
Bis(2-Ethylhexyl) Phthalate	2,929	0.33	H	2.923	100	70-130	
Benzo(b)Fluoranthene	2.456	0.33	H	2.423	101	70-130	
Benzo(k)Fluoranthene	2.138	0.33	tf	2.323	92.0	70-130	
Benzo(a)Pyrene	2.066	0.33	#1	2.457	84.1	70-130	
Surrogate: 2-Fluorophenol	2.757		rr	3.000	91.9	50-129	
Surrogate: Phenol-d6	3.785		"	3.050	124	50-132	

Keystone Laboratories, Inc. - Newton

Surrogate: Nitrobenzene-d5

Surrogate: 2-Fluorobiphenyl

Surrogate: Terphenyl-dl4

Surrogate: 2,4,6-Tribromophenol

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG Project Number: DAHA-A0066-84322-O

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 11/09/05 13:33

Determination of Physical/Conventional Chemistry Parameters - Quality Control

Keystone Laboratories, Inc. - Newton

ı											
ļ			Reporting		Spike	Source		%REC		RPD	
	Analyte	Result	Limit	Units	Levei	Result	%REC	Limits	RPD	Limit	Notes

Batch 1J52644 - Wet Chem Preparation

 Duplicate (1J52644-DUP1)
 Source: 15J1086-12
 Prepared: 10/26/05 Analyzed: 10/27/05

 % Solids
 84.0
 0.1
 %
 83.6
 0.477
 20

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Page 40 of 41





Montgomery Watson Harza-IA
Project: Jefferson Barracks ANG
11153 Aurora Avenue
Project Number: DAHA-A0066-84322-OF
Des Moines IA, 50322
Project Manager: Adam Newman

Reported: 11/09/05 13:33

Notes and Definitions

S-BN	Base/Neutral surrogate recovery outside of control limits. The data was accepted based on valid recovery of remaining two base/neutral surrogates.
QS-02	The spike recovery for this QC sample exceeded established acceptance limits. However, all samples were below the reporting and/or regulatory limit so the data is acceptable.
QS-01	The blank spike recovery was outside acceptance limits. Batch accepted based on acceptable MS/MSD/RPD results.
QR-06	The reference standard was outside of established control limits.
QR-05	The reference standard was outside of established control limits. The batch was accepted based on acceptable LCS, MS/MSD and RPD results.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery and/or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
D-06	The sample chromatographic pattern does not resemble the fuel standard used for quantitation
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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WORK ORDER

15J0975

Printed: 10/24/2005 2:07:38PM

Keystone Laboratories, Inc. - Newton

Client: Montgomery Watson Harza-IA Project Manager: Jeffrey King, Ph.D. Project: Jefferson Barracks ANG **Project Number:** DAHA-A0066-84322-OF

Report To: Invoice To:

Montgomery Watson Harza-IA Montgomery Watson Harza-IA

Adam Newman Adam Newman

11153 Aurora Avenue 11153 Aurora Avenue Des Moines, IA 50322 Des Moines, IA 50322 Phone: 515-253-0830 Phone:515-253-0830

Fax: 515-253-9592 Fax: 515-253-9592

Date Due: 11/04/05 17:00 (10 day TAT)

Received By: Bill Jenkins Date Received: 10/21/05 11:15 Date Logged In: Logged In By: Marlene Main 10/21/05 14:51

Samples Received at 5.6°C

Custody Seals No Received On Ice Yes

Containers Intact Yes COC/Labels Agree Yes Preservation Confin Yes

Analysis	Due	TAT	Expires	Comments
15J0975-01 Site 2-SB9 6-8'	[Soil] Sampled 10/20)/05 09:25 C	Central	
oa2-missouri	11/04/05 17:00	10	11/03/05 09:25	
15J0975-02 Site 2-SB10 3-4	' [Soil] Sampled 10/2	20/05 09:50	Central	
8270-100	11/04/05 17:00	10	11/03/05 09:50	MS/MSD
solids-dry-weight	11/04/05 17:00	10	04/18/06 09:50	MS/MSD
15J0975-03 Site 2-SB11 3-4	' [Soil] Sampled 10/2	0/05 10:08	Central	
8270-100	11/04/05 17:00	10	11/03/05 10:08	
solids-dry-weight	11/04/05 17:00	10	04/18/06 10:08	
15J0975-04 Site 2-SB12 3-4	' [Soil] Sampled 10/2	0/05 10:25	Central	
8270-100	11/04/05 17:00	10	11/03/05 10:25	
solids-dry-weight	11/04/05 17:00	10	04/18/06 10:25	
15J0975-05 Site 2-SB13 3-4	' [Soil] Sampled 10/2	0/05 10:45	Central	
solids-dry-weight	11/04/05 17:00	10	04/18/06 10:45	
8270-100	11/04/05 17:00	10	11/03/05 10:45	
15J0975-06 Site 2-SB14 3-4	' [Soil] Sampled 10/2	0/05 11:00	Central	
solids-dry-weight	11/04/05 17:00	10	04/18/06 11:00	
8270-100	11/04/05 17:00	10	11/03/05 11:00	

WORK ORDER

15J0975

Printed: 10/24/2005 2:07:38PM

Keystone Laboratories, Inc. - Newton

Client: Montgomery Watson Harza-IA

Project: Jefferson Barracks ANG

Project Manager: Project Number:

Jeffrey King, Ph.D.

DAHA-A0066-84322-OF

Analysis	Due	TAT	Expires	Comments
15J0975-07 Site 2-SB15	3-4' [Soil] Sampled 10/2	20/05 11:15	Central	
8270-100	11/04/05 17:00	10	11/03/05 11:15	
solids-dry-weight	11/04/05 17:00	10	04/18/06 11:15	
15J0975-08 Site 2-SB16	3-4' [Soil] Sampled 10/2	20/05 11:30	Central	
8270-100	11/04/05 17:00	10	11/03/05 11:30	
solids-dry-weight	11/04/05 17:00	10	04/18/06 11:30	
15J0975-09 Site 2-Dup-	1 [Soil] Sampled 10/20/0	5 00:00 Cer	ntral	
oa2-missouri	11/04/05 17:00	10	11/03/05 00:00	
15J0975-10 Site 2-Dup-	2 [Soil] Sampled 10/20/0	5 00:00 Cer	ntral	
solids-dry-weight	11/04/05 17:00	10	04/18/06 00:00	
8270-100	11/04/05 17:00	10	11/03/05 00:00	

Reviewed By

Date

OFCUSTODY RECORD **Veystone** 600 E. 17th St. S. 3012 Ansborough Ave. Kansas City, KS 66103 Newton, IA 50208 Waterloo, IA 50701 Phone: 641-792-8451 Phone: 319-235-4440 Phone: 913-321-7856 Fax: 319-235-2480 Fax: 913-321-7937 Fax: 641-792-7989 OF_ PAGE_ LABORATORIES, INC. www.keystonelabs.com

PRINT OR TYPE INFORMATION BE SAMPLER: Adam SITE NAME: Jetterson B. ADDRESS: CITY/ST/ZIP: St, Low PHONE:	R. R Darrach SBANG	(Ar h		COMPANY NAME:_	5.6 5.7 5.7	luines -0830	.co.^ 	a)	Ave		- - 7904	ADDI CITY PHOI	IE: IPAN` RESS //ST/Z DNE: _	(IP:	: Mu 11153 Des 1 5-25,	urt Aurol	y J SO	iman A 5032-7904 Maiks
CLIENT SAMPLE NUMBER	DATE	TIME	SAMPL	E LOCATION	NO. OF CONTAINERS	MATRIX	GRABICOMPOSITE	TEH (04-2)	SVOC5 (8270) }	ALYSES	REQ	UIRE SLIPPE	<u>D</u>	SAM	DRATORY IPLE TEMP IN RECEIP		ER NO 09).
Site2-SB10-3-4' b Site2-SB11-3-4' b Site2-SB12-3-4' b Site2-SB13-3-4' b	hu 25 hu 25 hu 25 hu 25	09:50 10:08 10:25 10:45	ERPS, to 2 ERPS, to 2 ERPS, to 2 ERPS, to 2	7 ()	コーニー	Soil Soil	6 6 6 6	X = = =	- X X X X									01 02 03 04 05
Site 2-SB14-3-4' 10 Site 2-SB15-3-4' 10 Site 2-SB16-3-4' 10 Site 2-Dup 2-10	/20/05 /20/05 /20/05 /20/05	1:00 1:13 1:30	ERP Site. ERP Site.) ERP Site. ERP Site.	<u>}</u>		Soil Soil	6 6 6	_ _ X _	X X X - X									06 07 08 09 10
Relinquished by: (Signature) Relinquished by: (Signature)		T:	1/02	red by: (Signature)	ire)	Date Date Time	e Z][los Anc		Turn-Arou Sta Remarks:	anda		az					or to Submission

Cooler # Mad.	0 1 5 1 1 5
Keystone Laboratories, Inc. Cooler/	Sample Receipt Form
Client:	Date Received: <u>/o/z//o5</u> Initials: <u>/ JM/</u>
Delivered By: UPS/ FedX/ AirBrn Pry Exp/ Mail/ Walk-in/ Courier Other:	Air Bill Number:
Type of packing material Bubble Foam/ Paper/ Peanuts/ Vermiculite/ NA/ C	other
Custody Seal: 🖵 Present 🎽 Absent 🖵 Broken Seal No	COC signed and dated: Yes No
Samples cooled by: Ice/Ice Packs/ NA/ Other Cooler Te	mperature (includes correction factor): 5.6°c
Sample Receipt Discrepancies: X No Yes (if Yes, see detail below)	
☐ Chain of Custody not present ☐ Information obtained from PO/ letter received with samples	☐ Broken or leaking containers:
 ☐ Container Problems: ☐ Label Absent ☐ Incorrect Containers for tests indicated ☐ Insufficient amount of sample for tests indicated 	☐ Sample listed on COC not received:
☐ COC incomplete ☐ COC missing time sampled, time obtained from sample container. ☐ COC missing date sampled, date obtained from sample container ☐ Sample excluded from COC:	☐ Air bubbles in VOA vials: ☐ Sample description on container label different from COC:
Detailed Description/comments:	
Client contacted regarding cooler/sample receipt conditions: Yes No Cor Who was contacted: Adam Newman Remarks: Sent e-m	· · ·

Revision 1, 8/03 Keystone Laboratories, Inc.





20 December 2005

Adam Newman Montgomery Watson Harza-IA 11153 Aurora Avenue Des Moines, IA 50322 RECEIVED

DEC 2 1 2005 MW/IOWA

RE: Jefferson Barracks ANG DAHA-A0066-84322-OF

Enclosed are the results of analyses for samples received by the laboratory on 11/30/05 08:05. If you have any questions concerning this report, please feel free to contact me at 1-800-858-5227.

Sincerely,

Jeffrey King, Ph.D.

Laboratory Director





11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EXA-SW-North 9'	15K1139-01	Soil	11/29/05 09:40	11/30/05 08:05
EXA-SW-East 9'	15K1139-02	Soil	11/29/05 09:45	11/30/05 08:05
EXA-SW-West 9'	15K1139-03	Soil	11/29/05 09:50	11/30/05 08:05
EXA-SW-South 9'	15K1139-04	Soil	11/29/05 10:00	11/30/05 08:05
EXA-FL-12'	15K1139-05	Soil	11/29/05 10:05	11/30/05 08:05
EXB1-SW-North 3'	15K1139-06	Soil	11/29/05 10:55	11/30/05 08:05
EXB1-SW-East 3'	15K1139-07	Soil	11/29/05 10:45	11/30/05 08:05
EXB1-SW-West 3'	15K1139-08	Soil	11/29/05 10:40	11/30/05 08:05
EXB1-SW-South 3'	15K1139-09	Soil	11/29/05 11:00	11/30/05 08:05
EXB1-FL-6'	15K1139-10	Soil	11/29/05 10:50	11/30/05 08:05
EXB2-SW-North 3'	15K1139-11	Soil	11/29/05 12:10	11/30/05 08:05
EXB2-SW-East 3'	15K1139-12	Soil	11/29/05 12:45	11/30/05 08:05
EXB2-SW-West 3'	15K1139-13	Soil	11/29/05 12:55	11/30/05 08:05
EXB2-SW-South 3'	15K1139-14	Soil	11/29/05 12:35	11/30/05 08:05
EXB2-FL-6'	15K1139-15	Soil	11/29/05 12:50	11/30/05 08:05
Dup-1	15K1139-16	Soil	11/29/05 00:00	11/30/05 08:05
Dup-2	15K1139-17	Soil	11/29/05 00:00	11/30/05 08:05

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXA-SW-North 9' 15K1139-01 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, In	c Nev	vton				
Determination of Extractable Petrol	eum Hydrocarb	ons							
TEH, as kerosene	ND	5	mg/kg	1	1K53019	11/30/05	12/01/05	Iowa OA-2	
TEH, as mineral spirits	19	5	11	11	52	Tř	H	n	
TEH, as hydraulic fluid	ND	5	,,,	ŧı	æ	ti	#	PŞ.	
TEH, as gasoline	ND	5	н	ŧI	u	ti	Ħ	н	
TEH, as #2 diesel fuel	ND	5	n	11	**	Ħ	Ŧ1	H	
TEH, as waste oil	57	5	**	н	н	H	μ	н	
Total Extractable Hydrocarbons	75	5	†#	Ħ	Ħ	19	**	Ħ	
Surrogate: Pentacosane		54.5 %	50-13	1	н	#	#	"	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXA-SW-East 9' 15K1139-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, In	c Nev	vton				
Determination of Extractable Petrole	um Hydrocart	ons							
TEH, as kerosene	ND	5	mg/kg	1	1K.53019	11/30/05	12/01/05	Iowa OA-2	
TEH, as mineral spirits	6	5	#1	Ħ	31	Ħ	Ħ	Ħ	
TEH, as hydraulic fluid	ND	5	Ħ	Ħ	е	n	Ħ	Ħ	
TEH, as gasoline	ND	5	Ħ	Ħ	17	Ħ	н	Ħ	
TEH, as #2 diesel fuel	ND	5	ti	tt	u	σ	11	11	
TEH, as waste oil	141	5	Iŧ.	tt	H	н	ij	æ	
Total Extractable Hydrocarbons	147	5	II	9	Ħ	Ħ	11	\$1	
Surrogate: Pentacosane		94.6 %	50-13	1	"	"	tr .	H	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXA-SW-West 9' 15K1139-03 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, I	nc Nev	vton				
Determination of Extractable Petro	leum Hydrocarl	bons							
TEH, as kerosene	ND	5	mg/kg	I	1K53019	11/30/05	12/01/05	Iowa OA-2	
TEH, as mineral spirits	ND	5		21	*1	Ħ	B	+1	
TEH, as hydraulic fluid	ND	5	н	17	Ħ	17	ы	o o	
TEH, as gasoline	ND	5	11	н	H	и	Ħ	11	
TEH, as #2 diesel fuel	ND	5	Ħ	Ħ	řt.	ы	11	w	
TEH, as waste oil	ND	5	18	u	Ħ	Ħ	17	н	
Total Extractable Hydrocarbons	ND	5	н	н	н	0	ti	n	
Surrogate: Pentacosane		86.5 %	50-1	31	11	"	n	n	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXA-SW-South 9' 15K1139-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, Ir	ıc Nev	vton				
Determination of Extractable Petrole	um Hydrocarl	ons							
TEH, as kerosene	ND	5	mg/kg	1	1K53019	11/30/05	12/01/05	Iowa OA-2	
TEH, as mineral spirits	14	5	и	11	ŧŧ	tt	19	н	
TEH, as hydraulic fluid	ND	5	7)	1 *	£ 1	tr	Ħ	н	
TEH, as gasoline	ND	5	11	u	н	ŦT	f t	ŦI	
TEH, as #2 diesel fuel	ND	5	It	п	**	11	11	u	
TEH, as waste oil	20	5	Ħ	ti	29	B	4	H	
Total Extractable Hydrocarbons	34	5	11	Ħ	31	11	H	‡T	
Surrogate: Pentacosane		97.3 %	50-13	31	#	"	"	71	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXA-FL-12' 15K1139-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keyst	one Labor	atories, I	nc Nev	vton				
Determination of Extractable Petrole	eum Hydrocarb	ons							
TEH, as kerosene	ND	5	mg/kg	1	1K53019	11/30/05	12/01/05	lowa OA-2	
TEH, as mineral spirits	ND	5	н	ŧi	ff	#1	ij	11	
TEH, as hydraulic fluid	ND	5	£I .	11	Ħ	11	н	19	
TEH, as gasoline	ND	5	Ħ	"	n	11	l#	Ħ	
TEH, as #2 diesel fuel	ND	5	11	н	**	Ħ	11	н	
TEH, as waste oil	9	5	Ħ	н	Еŧ	н	0	n.	
Total Extractable Hydrocarbons	9	5	11	#1	11	1)	11	Ü	
Surrogate: Pentacosane		94.5 %	50-1.	31	n	**	**	"	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB1-SW-North 3' 15K1139-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	•	stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable C						,		
N-Nitrosodimethylamine	ND		mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	11	11	II	H	Ħ	35	
Aniline	ND	0.33	Ħ	н	##	Ħ	ŧı	н	
Bis(2-Chloroethyl) Ether	ND	0.33	ŧŧ.	17	#7	71	tt.	#1	
2-Chlorophenol	ND	0.33	# #	#	*1	11	11	н	
1,3-Dichlorobenzene	ND	0.33	†ŧ	B	n	Ħ	Ħ	9	
1,4-Dichlorobenzene	ND	0.33	f ‡	Ħ	u	ti	Ħ	11	
Benzyl Alcohol	ND	0.33	Fŧ	11	11	11	Ħ		
1,2-Dichlorobenzene	ND	0.33	11	41	n	11	Ħ	**	
2-Methylphenol	ND	0.33	н	‡1	31	tt	*1	ff	
Bis(2-Chloroisopropyl) Ether	ND	0.33	H	11	ft	n	tt	e f	
n-Nitroso-di-n-propylamine	ND	0.33	"	ø	**	H	0	31	
(3 & 4)-Methylphenol	ND	0.33	н	ü	14	н	111	P†	
Hexachloroethane	ND	0.33	**	11	#	н	ti.	н	
Nitrobenzene	ND	0.33	11	11	†1	H	u	+1	
Isophorone	ND	0.33	ł)	Ħ	11	rı .	H	tt.	
2-Nitrophenol	ND	0.33	11	н	ii	(I	#	u	
2,4-Dimethylphenol	ND	0.33	11	H	II	n	н	1T	
Bis(2-Chloroethoxy) Methane	ND	0.33	e	11	U	u	11	11	
2,4-Dichlorophenol	ND	0.33	H	{1	н	н	rı .	ÞŢ	
1,2,4-Trichlorobenzene	ND	0.33	н	Ħ	#	F#	11	ti	
Naphthalene	ND	0.33	*1	11	11	Ħ	н	+1	
4-Chloroaniline	ND	0.33	**	н	*>	#) †	e)	
Hexachlorobutadiene	ND	0.33	#	н	ti	Ħ	H	ti.	
4-Chloro-3-methylphenol	ND	0.33	Ħ	Ħ	er	n	Ħ	t‡	
2-Methylnaphthalene	ND	0.33	H	11	e	17	19	11	
Hexachlorocyclopentadiene	ND	0.33	19	11	н	н	Ħ	H	
2,4,6-Trichlorophenol	ND	0.33	11	Ħ	Ħ	н	ŧ!	н	
2,4,5-Trichlorophenol	ND	1.65	It	**	B	H	Đ	13	
2-Chloronaphthalene	ND	0.33	II	•	16	16	17	+1	
2-Nitroaniline	ND	1.65	n	+3	#	Ħ	н	ii	
Dimethylphthalate	ND	0.33	+1	tt	#	ü	ŧs	ti	
Acenaphthylene	ND	0.33	**	íı	u	0	51	15	
2,6-Dinitrotoluene	ND	0.33	**	19	**	e e	H	1)	
3-Nitroaniline	ND	1.65	111	H	9	16	Ħ	39	
Acenaphthene	ND	0.33	Ħ	η	11	Ħ	"	я	
Асспарныене	(ND	0.33							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported:

12/20/05 14:49

EXB1-SW-North 3' 15K1139-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Aci	d Extractable C	ompounds							
2,4-Dinitrophenol	ND	1.65	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	······································
Dibenzofuran	ND	0.33	Ħ	н	†3	В	ti .	н	
2,4-Dinitrotoluene	ND	0.33	#	H	ų.	ŧì	R	ы	
4-Nitrophenol	ND	0.66	н	tı	n	u	Ħ	α	
Diethyl Phthalate	ND	0.33	11	n	17	a	**	Ħ	
Fluorene	ND	0.33	11	ti	н	31	45	31	
4-Chlorophenyl Phenyl Ether	ND	0.33	11	18	ft.	н	н	tı	
4-Nitroaniline	ND	0.66	#	В	11	H	н	,,	
4,6-Dinitro-2-methylphenol	ND	1.65	А	12	Ħ	U	ø	U	
N-Nitrosodiphenylamine	ND	0.33	н	9	Ħ	H	II	Ħ	
Azobenzene	ND	0.33	*1	ŧs	IJ	fs.	#1	11	
4-Bromophenyl Phenyl Ether	ND	0.33	17	11	**	II .	31	11	
Hexachlorobenzene	ND	0.33	н	31	Ħ	n	0	52	
Pentachlorophenol	ND	0.66	н	e	Ħ	Ħ	#	#1	
Phenanthrene	ND	0.33	##	Ħ	"	Ħ	11	0	
Anthracene	ND	0.33	Ħ	я	**	U	a	9	
Di-n-butyl Phthalate	ND	0.33	B	1/	19	tş		н	
Fluoranthene	ND	0.33	ti .	11	Ħ	n	Ħ	Ħ	
Benzidine	ND	0.33	Ŧf	19	0	**	**	11	
Pyrene	ND	0.33	##	н	Ħ	IT	8	ŧŧ	
Butyl Benzyl Phthalate	ND	0.33	#	#1	łł	If	#	ΕŞ	
Benzo(a)anthracene	ND	0.33	ц	18	Ħ	n	Ħ	#1	
Chrysene	ND	0.33	11	tf	10	+1	**	tr	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	48	н	**	¥f	tr	29	
Di-n-octyl Phthalate	ND	0.33	51	if	Ħ	Ħ	Ħ	ři,	
Indeno(1,2,3-cd)Pyrene	ND	0.33	11	a	#1	11	Ħ	11	
3,3'-Dichlorobenzidine	ND	0.66	11	17	8	tt .	n	44	
Benzo(b)Fluoranthene	ND	0.33	Ħ	B	U	#	ft	tf.	
Benzo(k)Fluoranthene	ND	0.33	13	R	**	Ħ	Ħ	Ħ	
Benzo(a)Pyrene	ND	0.33	M	it	14	71	11	ù	
Dibenzo(a,h)anthracene	ND	0.33	t 1	Ħ	ts	Ħ	tt	Ħ	
Benzo(g,h,i)perylene	ND	0.33	35	н	В	Ħ	pi	†#	
Surrogate: 2-Fluorophenol		53.4 %	50-1	29	n	#	77	n	
Surrogate: Phenol-d6		91.8%	50-1	32	"	n	R	"	
Surrogate: Nitrobenzene-d5		87.2 %	50-1	10	11	n	,,,	n	
Surrogate: 2-Fluorobiphenyl		101 %	50-1		н	"	**	и	

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Montgomery Watson Harza-IA 11153 Aurora Avenue Project: Jefferson Barracks ANG Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

Des Moines IA, 50322

EXB1-SW-North 3' 15K1139-06 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	ompounds							
Surrogate: 2,4,6-Tribromophenol		198 %	54-1	40	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		95.2 %	50-1	24	"	#	#	u	
Determination of Physical/Conven	tional Chemistry	Parameters	;						
% Solids	79.7	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB1-SW-East 3' 15K1139-07 (Soil)

-	Limit				Prepared	Analyzed	Method	Notes			
	Keystone Laboratories, Inc Newton										
tractable C	ompounds										
ND	0.33	mg/kg dry	į	1K53018	11/30/05	11/30/05	EPA 8270C				
ND	0.33	н	Ð	11	n	F#	н				
ND	0.33	11	11	**	14	#1	В				
ND	0.33	H	11	59	н	a a	e e				
ND	0.33	1 #	Ħ	H	п	11:	18				
ND	0.33	11	Ħ	(1	U	Ħ	ਜ				
ND	0.33	н	41	n	**	н	n				
ND	0.33	ti .	ąk	tf	E+	31	+1				
ND	0.33	ft	95	#	31	9	#				
ND	0.33	11	В	Ħ	0	H	#				
ND	0.33	řt.	#1	tt	н	**	н				
ND	0.33	11	a	H	Ħ	40	+1				
ND	0.33	fI	11	Ħ	f1	n	11				
ND	0.33	42	ft	÷r.	t)	r#	Ff				
ND	0.33	1#	н	u	11	11	н				
ND	0.33	tŧ	+1	п	R	11	u				
ND	0.33	fr	H	Ħ	11	11	ıı				
ND	0.33	78	17	#7	R	H	ŧŦ				
ND	0.33	ft	H		B	bţ	R				
ND	0.33	18	н	н	н	**	н				
ND	0.33	91	n	,,	н	ti.	u				
ND	0.33	н	11	\$1	н	29	11				
ND	0.33	11	'n	† Ŧ	Į)	Ħ	6)				
ND	0.33	n	14	•	0	н	н				
ND	0.33	п	15	11	9	tt	н				
ND	0.33	Ħ	15	11	н	17	ı l				
ND	0.33	n	27	#	*1	#	Ħ				
ND	0.33	+1	P	A	it	Ti.	H				
ND	1.65	Ħ	E¥.	,1	u	Ħ	11				
ND	0.33	#	##	Ħ	Ħ	ŧŦ.	eş				
ND	0.33	11	it	श	f1	н	12				
ND	1.65	Ħ		U	11	ft	11				
ND		Ħ	F4	н	н	13	**				
		#	#	15	н	34	4				
		51	Ð	11	11	17	Pr				
		19	9\$	ęŧ	11	+1	st				
	ND ND ND ND ND ND ND ND ND ND ND ND ND N	ND 0.33 ND 0.33	ND	ND ND 0.33 ND 0.34 ND 0.35 ND 0.35 ND 0.36 ND 0.37 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.38 ND 0.	ND O.33 ND O.34 O.35 O.	ND O.33 ND O.34 O.35 O.	ND	ND			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB1-SW-East 3' 15K1139-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	•	stone Labo	ratories, I	ne Nev	vton			,	
Determination of Base/Neutral/Ac	cid Extractable C	ompounds							
2,4-Dinitrophenol	ND	1.65	mg/kg dry	I	IK53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	11	В	U	H	Ħ	tı	
2,4-Dinitrotoluene	ND	0.33	18	н	n	Ħ	Ħ	п	
4-Nitrophenol	ND	0.66	t ı	11	19	79	Ħ		
Diethyl Phthalate	ND	0.33	f t	ł r	14	Ħ	11	14	
Fluorene	ND	0.33	#	ŧ	11	Ħ	H	11	
4-Chlorophenyl Phenyl Ether	ND	0.33	#	\$ ¶	Ħ	41	n	ы	
4-Nitroaniline	ND	0.66	H	н	*1	**	Ħ	**	
4,6-Dinitro-2-methylphenol	ND	1.65	#	n	19	n	Ħ	75	
N-Nitrosodiphenylamine	ND	0.33	If	Ħ	11	U U	11	11	
Azobenzene	ND	0.33	н	It	n	Ħ	n	0	
4-Bromophenyl Phenyl Ether	ND	0.33	IJ	н	n	ti .	0	n	
Hexachlorobenzene	ND	0.33	19	й.	н	h .	u	tr.	
Pentachlorophenol	ND	0.66	n	n	in .	n	,,	**	
Phenanthrene	ND	0.33	ŦĬ	ŧ	+1	16	H	*1	
Anthracene	ND	0.33	11	17	41	tr	**	H	
Di-n-butyl Phthalate	ND	0.33	11	88	a	11	31	TF.	
Fluoranthene	ND	0.33	64	Ff .	15	tt.	11	tr.	
Benzidine	ND	0.33	16	St	11	11	H	ti	
Pyrene	ND	0.33	11	11	34	Ħ	H	н	
Butyl Benzyl Phthalate	ND	0.33	71	n	#	11	Ħ	ti	
Benzo(a)anthracene	ND	0.33	#1	u	π	H	ft	11	
Chrysene	ND	0.33	19	15	ч	10	#	u	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	If	Ħ	ft	ŧŧ	n	48	
Di-n-octyl Phthalate	ND	0.33	H	13	В	Ħ	В	IŦ	
Indeno(1,2,3-cd)Pyrene	ND	0.33	119	*1	H	Ħ	н	H	
3,3'-Dichlorobenzidine	ND	0.66	11	13	şı	n	¥.	Fr	
Benzo(b)Fluoranthene	ND	0.33	Ħ	15	H	59	Ħ	н	
Benzo(k)Fluoranthene	ND	0.33	11	0	31	**	n	+1	
Benzo(a)Pyrene	ND	0.33	n	n	19	H	**	u	
Dibenzo(a,h)anthracene	ND	0.33	"	56	**	Ħ	н	n	
Benzo(g,h,i)perylene	ND	0.33	н	ķī	l#	ft	tf	19	
Surrogate: 2-Fluorophenol	, , , , ,	58.4 %	50-1	29	n	"	n	#	
Surrogate: Phenol-d6		87.7 %	50-1.		**	**	n	"	
Surrogate: Nitrobenzene-d5		87.3 %	50-1		ti.	ri	u	n	
		90.7 %	50-1 50-1		31	17	#	,,	
Surrogate: 2-Fluorobiphenyl		90.7 70	30-1	i 4					

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB1-SW-East 3' 15K1139-07 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labora	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		163 %	54-1	40	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		90.6 %	50-1	24	**	Ħ	"	n	
Determination of Physical/Conven	tional Chemistry	Parameters	Š						
% Solids	79.6	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB1-SW-West 3' 15K1139-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	eid Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	11	14	##	u	11	Ħ	
Aniline	ND	0.33	39	н	**	ŧ1	Ħ	11	
Bis(2-Chloroethyl) Ether	ND	0.33	r+	в	Ħ	Ħ	н	+1	
2-Chlorophenol	ND	0.33	u-	Ħ	n	Ħ	Ħ	17	
1,3-Dichlorobenzene	ND	0.33	н	11	U	11	P	ft.	
1,4-Dichlorobenzene	ND	0.33	11	44	t1	**	11	H	
Benzyl Alcohol	ND	0.33	ŧ1	Ħ	łf	11	11	**	
1,2-Dichlorobenzene	ND	0.33	13	11:	Ħ	n .	11	н	
2-Methylphenol	ND	0.33	11	**	11	11	0	н	
Bis(2-Chloroisopropyl) Ether	ND	0.33	11	ŧ†	11	н	n	ti.	
n-Nitroso-di-n-propylamine	ND	0.33	н	Ħ	n	н	kī	u	
(3 & 4)-Methylphenol	ND	0.33	11	н	53	н	#1	"	
Hexachloroethane	ND	0.33	11	19	n ·	u	11	11	
Nitrobenzene	ND	0.33	11	ŧs	H	11	!!	Ħ	
Isophorone	ND	0.33	#	8	fi	r y	n	11	
2-Nitrophenol	ND	0.33	**	Ħ	tt	**	11	ti	
2,4-Dimethylphenol	ND	0.33	н	н	n	ff	#1	O	
Bis(2-Chloroethoxy) Methane	ND	0.33	н	54	В	ħ	łı	er	
2,4-Dichlorophenol	ND	0.33	n	11	11	u	11	èŦ	
1,2,4-Trichlorobenzene	ND	0.33	Ħ	11	† ?	п	1)	n	
Naphthalene	ND	0.33	#	IŞ.	n	Ħ	н	n	
4-Chloroaniline	ND	0.33	13	H	tt	11	15	ts	
Hexachlorobutadiene	ND	0.33	11	79	ff	Ħ	**	rt .	
4-Chloro-3-methylphenol	ND	0.33	Ħ	a	В	u	#1	н	
2-Methylnaphthalene	ND	0.33	şı	ti	Ħ	17	3.8	н	
Hexachlorocyclopentadiene	ND	0.33	#1	11	f1	17	n	**	
2,4,6-Trichlorophenol	ND	0.33	ŧŧ	11	11	н	11-	0	
2,4,5-Trichlorophenol	ND	1.65	it	\$f	9	н	Ħ	11	
2-Chloronaphthalene	ND	0.33	11	н	11	Ħ	†1	E1	
2-Nitroaniline	ND	1.65	"	18	**	π	17	н	
Dimethylphthalate	ND	0.33	F5	se .	и	n	11	н	
Acenaphthylene	ND	0.33	##	ff.	н	11	27	Ð	
2.6-Dinitrotoluene	ND	0.33	41	45	11	"	19	17	
3-Nitroaniline	ND	1.65	31	k†	#	11	11	н	
Acenaphthene	ND	0.33	șt	H	Þf	43	π	н	
леснаришене	174.7	0.55							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB1-SW-West 3' 15K1139-08 (Soil)

Apolisto	D16	Reporting		Dilestia	Datak	Drongerod	A	Mathad	X }~≠-
Analyte	Result	Limit	······································	Dilution	Batch	Prepared	Analyzed	Method	Notes
المنا والمناس المناس المرااي والمناس	•	tone Labo	ratories, l	nc Nev	vton				
Determination of Base/Neutral/Ac									
2,4-Dinitrophenol	ND		mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	+1	41	#1	ef	**	я	
2,4-Dinitrotoluene	ND	0.33	Ħ	11	ŧŧ	H	ii.	Ħ	
4-Nitrophenol	ND	0.66	14	Ħ	fī	ii.	0	а	
Diethyl Phthalate	ND	0.33	н	и	11	Ħ	н	17	
Fluorene	ND	0.33	Ð	il .	H	Ħ	8	Ħ	
4-Chlorophenyl Phenyl Ether	ND	0.33	fŧ	H	Ħ	H	н	19	
4-Nitroaniline	ND	0.66	ts	11	ff	н	Ħ	n	
4,6-Dinitro-2-methylphenol	ND	1.65	+)	n	tt	45	n	и	
N-Nitrosodiphenylamine	ND	0.33	18	If	Ħ	ti	ŧŧ	Ħ	
Azobenzene	ND	0.33	E\$	B	ŧŧ	#	Ħ	n	
4-Bromophenyl Phenyl Ether	ND	0.33	μ	*1	11	н	11	4	
Hexachlorobenzene	ND	0.33	13	tt	Ħ	41	41	0	
Pentachlorophenol	ND	0.66	1#	t#	В	n	Ħ	0	
Phenanthrene	ND	0.33	ft	12	#1	Ħ	41	н	
Anthracene	ND	0.33	11	ø	ŧ1	n	11	0	
Di-n-butyl Phthalate	ND	0.33	\$ ‡*	n	H	ti .	Ħ	tí	
Fluoranthene	ND	0.33	Ħ	Ħ	13	H	ii.	B	
Benzidine	ND	0.33	н	Ħ	ŧŧ	*11	U	**	
Pyrene	ND	0.33	4)	#	n	n n	11	н	
Butyl Benzyl Phthalate	ND	0.33	tt.	H	Ħ	0	†!	łя	
Benzo(a)anthracene	ND	0.33	Ħ	#1	u	h	16	11	
Chrysene	ND	0.33	н	16	1)	h	31	21	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	Ħ	11	н	1)	h	Ħ	
Di-n-octyl Phthalate	ND	0.33	×	н	Ħ	н	15	11	
Indeno(1,2,3-cd)Pyrene	ND	0.33	n	я	11	Ħ	17	98	
3,3'-Dichlorobenzidine	ND	0.66	H	n	n	19	п	pt	
Benzo(b)Fluoranthene	ND	0.33	U.	71	11	Ħ	11	11	
Benzo(k)Fluoranthene	ND	0.33	11	n	11	n	Ħ	Ħ	
Benzo(a)Pyrene	ND	0.33	f1	19	18	28	н	н	
Dibenzo(a,h)anthracene	ND	0.33	n	#2	н	H	it	11	
Benzo(g,h,i)perylene	ND	0.33	11	11	19	H	8	я	
Surrogate: 2-Fluorophenol		49.0 %	50-1	29	n	ri	#	н	S-07
Surrogate: Phenol-d6		76.3 %	50-1	32	n	"	u	#	
Surrogate: Nitrobenzene-d5		78.4 %	50-1		n	78	н	78	
Surrogate: 2-Fluorobiphenyl		84.0 %	50-1		n	n	#	н	
Surrogate: 2-r tuorooipnenyi		U4.U /0	20-1						

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB1-SW-West 3' 15K1139-08 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/A	eid Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		145 %	54-1	40	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		76.3 %	50-1	24	#	ø	#	n	
Determination of Physical/Conve	ntional Chemistry	Parameter:	5						
% Solids	79.8	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB1-SW-South 3' 15K1139-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
,	Key	stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	-	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	1#	11	ti	n	EF	0	
Aniline	ND	0.33	ŧŧ	28	н	tf	11	3\$	
Bis(2-Chloroethyl) Ether	ND	0.33	18	Ħ	Ħ	u)	11	84	
2-Chlorophenol	ND	0.33	+)	н	ย	tt	n	**	
1,3-Diehlorobenzene	ND	0.33	1 †	Ħ	Ħ	ŧI	Ħ	n	
1,4-Dichlorobenzene	ND	0.33	18	9	n	н	11	PE	
Benzyl Alcohol	ND	0.33	н	н	fī	11	n	Ħ	
1,2-Dichlorobenzene	ND	0.33	11	Ħ	H	Ħ	**	+9	
2-Methylphenol	ND	0.33	ŧŦ	Ħ	n	U	Ħ	BF.	
Bis(2-Chloroisopropyl) Ether	ND	0.33	t+	ij	Ħ	н	π	H	
n-Nitroso-di-n-propylamine	ND	0.33	"	#	#1	*11	11	11	
(3 & 4)-Methylphenol	ND	0.33	11	н	Ð	ři.	H	tt.	
Hexachloroethane	ND	0.33	††	n	If	ti	15	bķ	
Nitrobenzene	ND	0.33	t#	16	н	h	и	H	
Isophorone	ND	0.33	II .	n	\$3	n	11	#	
2-Nitrophenol	ND	0.33	Ħ	Ħ	a	ŧŧ	Ħ	Ð	
2,4-Dimethylphenol	ND	0.33	Ħ	a	IT	н	Ħ	15	
Bis(2-Chloroethoxy) Methane	ND	0.33	1#	11	Ħ	0	a	Ħ	
2,4-Dichlorophenol	ND	0.33	11	69	¥	н	8	**	
1,2,4-Trichlorobenzene	ND	0.33	ft	Ħ	#1	н	11	48	
Naphthalene	ND	0.33	**	н	\$\$	0	Ħ	н	
4-Chloroaniline	ND	0.33	19	19	H	и	н	n	
Hexachlorobutadiene	ND	0.33	11	a	H	н	**	łs	
4-Chloro-3-methylphenol	ND	0.33	fi	ft	н	n	B	H	
2-Methylnaphthalene	ND	0.33	51	11	It	Ħ	Ħ	Eŧ	
Hexachlorocyclopentadiene	ND	0.33	17	O	34	H	**	¥1	
2,4,6-Trichlorophenol	ND	0.33	II	99	a	Ħ	b¥	19	
2,4,5-Trichlorophenol	ND	1.65	11	Ħ	н	e	+F	Ħ	
2-Chloronaphthalene	ND	0.33	11	*1	13	н	11	18	
Dimethylphthalate	ND	0.33	п	**	ti	Ħ	#	O.	
2-Nitroaniline	ND	1.65) i	H	в	#1	Ħ	ŧŧ	
Acenaphthylene	ND	0.33	#1	Ħ	и	n	#	Я	
2.6-Dinitrotoluene	ND	0.33	н	71	11	н	н	ts	
3-Nitroaniline	ND	1.65	39	ir	н	H	Ħ	29	
Acenaphthene	ND	0.33	fi fi	ŧf	tf	0	ŧi	9	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB1-SW-South 3' 15K1139-09 (Soil)

Anaiyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton	,			
Determination of Base/Neutral/Aci	d Extractable C	ompounds							
2,4-Dinitrophenol	ND	1.65	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	11	H	ł1	H	R	H	
2,4-Dinitrotoluene	ND	0.33	It	13	tt	Ħ	Ħ	8)	
4-Nitrophenol	ND	0.66	#	н	fŦ	11	51	n	
Diethyl Phthalate	ND	0.33	H	it	Ħ	rt.	#	tt	
Fluorene	ND	0.33	**	ŧI.	Ħ	Ħ	n	н	
4-Chlorophenyl Phenyl Ether	ND	0.33	+1*	#	G	16	11	+1	
4-Nitroaniline	ND	0.66	#1	Ħ	**	tr	#1	и	
4,6-Dinitro-2-methylphenol	ND	1.65	Ħ	\$1	14	रई	"	n	
N-Nitrosodiphenylamine	ND	0.33	38	4	şı	U	5†	ta .	
Azobenzene	ND	0.33	11	it	8	Ħ	Ħ	n	
4-Bromophenyl Phenyl Ether	ND	0.33	н	н	H	11	u	n	
Hexachlorobenzene	ND	0.33	#	ю	61	16	14	н	
Pentachlorophenol	ND	0.66	Ħ	f E	št	ţţ	Ħ	fg.	
Phenanthrene	ND	0.33	н	41	et	Ħ	41	65	
Anthracene	ND	0.33	tt	н	-	**	H	н	
Di-n-butyl Phthalate	ND	0.33	11	9	+9	U	Þ	n	
Fluoranthene	ND	0.33	11	ff	If	B	п	35	
Benzidine	ND	0.33	*1	Ħ	ft	Ħ	"	H	
Pyrene	ND	0.33	18	71	н	tt	ff .	13	
Butyl Benzyl Phthalate	ND	0.33	μ	Ħ	H	Ħ	¥1	#	
Benzo(a)anthracene	ND	0.33	Ð	11	Ħ	Ħ	ŧ r	14	
Chrysene	ND	0.33	tf	ŧŧ	н	11	ft	**	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	¥t	9	н	Ħ	Ħ	n	
Di-n-octyl Phthalate	ND	0.33	tr	Ħ	Ħ	Ħ	u	ŧŧ	
Indeno(1,2,3-cd)Pyrene	ND	0.33	ff	f2	Ħ	n	Ħ	и	
3,3'-Dichlorobenzidine	ND	0.66	II.	11	n	н	Ħ	11	
Benzo(b)Fluoranthene	ND	0.33	н	9	**	69	0	ŧŧ	
Benzo(k)Fluoranthene	ND	0.33	H	**	78	ti.	**	н	
Benzo(a)Pyrene	ND	0.33	11	12	n	11	14	er	
Dibenzo(a,h)anthracene	ND	0.33	14	**	**	H	16	83	
Benzo(g,h,i)perylene	ND	0.33	11	В	B	H	tr .	H	
Surrogate: 2-Fluorophenol		55.9 %	50-12	29	14	n	n	н	
Surrogate: Phenol-d6		98.2 %	50-13	3.2	н	n	11	"	
Surrogate: Nitrobenzene-d5		101 %	50-1	10	n	#	n	n	
Surrogate: 2-Fluorobiphenyl		107 %	50-1.	12	"	н	77	IF	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB1-SW-South 3' 15K1139-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	stone Labora	atories, l	Inc Nev	vton				
Determination of Base/Neutral/Acid	Extractable Co	ompounds							
Surrogate: 2,4,6-Tribromophenol		176 %	54-,	140	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		105 %	50-	124	H	п	ır	"	
Determination of Physical/Convention	onal Chemistry	Parameters	\$						
% Solids	79.3	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB1-FL-6' 15K1139-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	eid Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	Ħ	Ð	it	Ħ	Ð	11	
Aniline	ND	0.33	n	17	ŧŧ	n	lf.	Ħ	
Bis(2-Chloroethyl) Ether	ND	0.33	11	R	н	15	Ħ	Ħ	
2-Chlorophenol	ND	0.33	11	#I	Ħ	tf	Ħ	**	
1,3-Dichlorobenzene	ND	0.33	ft .	ij	11	н	11	n	
1,4-Dichlorobenzene	ND	0.33	н	11	(t	Ħ	17	в	
Benzyl Alcohol	ND	0.33	+)	It	11	0	Ħ	н	
1,2-Dichlorobenzene	ND	0.33	Ħ	н	**	ti .	и	н	
2-Methylphenol	ND	0.33	91	18	н	н	a a	11	
Bis(2-Chloroisopropyl) Ether	ND	0.33	11	11	11	н	**	0	
n-Nitroso-di-n-propylamine	ND	0.33	n	11	11		0	54	
(3 & 4)-Methylphenol	ND	0.33	7\$	Ħ	51	10	н	†1	
Hexachloroethane	ND	0.33	18	н	н	н	Ħ	Ð	
Nitrobenzene	ND	0.33	11	it	fI	H	u	0	
Isophorone	ND	0.33	11	**		11	н	н	
2-Nitrophenol	ND	0.33	ħ	H	Ħ	lt.	н	it .	
2,4-Dimethylphenol	ND	0.33	(#	9	Ħ	19	n	17	
Bis(2-Chloroethoxy) Methane	ND	0.33	(†	11	a	**	H	57	
2,4-Dichlorophenol	ND	0.33	u	*	ti	n	Př	R	
1,2,4-Trichlorobenzene	ND	0.33	Ħ	N	и	H	**	n	
Naphthalene	ND	0.33	**	18	*1	**	11	**	
4-Chloroaniline	ND	0.33	**	н	tt.	tt.	н	Ht	
Hexachlorobutadiene	ND	0.33	II.	Ħ	Ħ	n	έq	Ħ	
4-Chloro-3-methylphenol	ND	0.33	11	B	н	Ħ	#	ři.	
2-Methylnaphthalene	ND	0.33	#	ti	**	\$\$	11	14	
Hexachlorocyclopentadiene	ND	0.33	18	u	13	et.	ų	t†	
2,4,6-Trichlorophenol	ND	0.33	"	fF .	8	ti	84	н	
2,4,5-Trichlorophenol	ND	1.65	н	Ħ	FF	ĸ	и	11	
2-Chloronaphthalene	ND	0.33	#	tž	Ħ	11	tt	ø	
2-Nitroaniline	ND	1.65	tr	**	11	41	79	11	
Dimethylphthalate	ND	0.33	44	£\$	15	n	**	и	
Acenaphthylene	ND	0.33	7.0	11	Ħ	Ħ	a	ęś	
2,6-Dinitrotoluene	ND	0.33	##	11	11	#1	15	**	
3-Nitroaniline	ND	1.65	17	ii	FE	et	Ff	ii.	
Acenaphthene	ND	0.33	6	Ħ	н	ST .	Ħ	18	
льыаринын	1475	(9.47.2)							

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Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB1-FL-6' 15K1139-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Katalana da katalana katalana katalana katalana katalana katalana katalana katalana katalana katalana katalana		tone Labor							
Determination of Base/Neutral/Ac	-		,						
2,4-Dinitrophenol	ND	1.65 ı	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	H	18	rt	н	tf	ti	
2,4-Dinitrotoluene	ND	0.33	í\$	Ħ	ft	u	Ħ	π	
4-Nitrophenol	ND	0.66	11	Я	a	11	Ð	н	
Diethyl Phthalate	ND	0.33	+1	11	ti	**	н	n	
Fluorene	ND	0.33	(I	н	Ħ	n	Ħ	H	
4-Chlorophenyl Phenyl Ether	ND	0.33	Iŧ	Ħ	n	H	11	Ħ	
4-Nitroaniline	ND	0.66	ł)	0	11	ff	#	19	
4,6-Dinitro-2-methylphenol	ND	1.65	14	17	Ħ	a	ft	86	
N-Nitrosodiphenylamine	ND	0.33	11	Ħ	n	l¥	Ħ	н	
Azobenzene	ND	0.33	fl	1)	11	Ŧf	tł	н	
4-Bromophenyl Phenyl Ether	ND	0.33	Ħ	,,	11	Ħ	н	et	
Hexachlorobenzene	ND	0.33	H	н	п	tt	tt	н	
Pentachlorophenol	ND	0.66	HE.	ţz	н	†#	51	a	
Phenanthrene	ND	0.33	11	11	13	ø	н	ii	
Anthracene	ND	0.33	0	n	"	0	**	п	
Di-n-butyl Phthalate	ND	0.33	n .	et.	Ħ	Tá	11	15	
Fluoranthene	ND	0.33	Ħ	12	#\$	ţı.	Ħ	Ħ	
Benzidine	ND	0.33	11	rī .	H	11	n	н	
Pyrene	ND	0.33	H	is	н	н	**	ft.	
Butyl Benzyl Phthalate	ND	0.33	н	41	11	¥	н	412	
Benzo(a)anthracene	ND	0.33	lt.	*	sf	ef	**	Ħ	
Chrysene	ND	0.33	н	н	H	н	11	n	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	11	Ð	14	14	н	19	
Di-n-octyl Phthalate	ND	0.33	t+	Ħ	88	tş	11	я	
Indeno(1,2,3-cd)Pyrene	ND	0.33	H	Ħ	n	Ħ	44	12	
3.3'-Dichlorobenzidine	ND	0.66	**	tt	39	н	17	1¢	
Benzo(b)Fluoranthene	ND	0.33	#	ÞŦ	9	H	H	11	
Benzo(k)Fluoranthene	ND	0.33	B.	#	Ħ	Ħ	Ħ	11	
Benzo(a)Pyrene	ND	0.33	41	H	17	11	Ħ	ft	
Dibenzo(a,h)anthracene	ND	0.33	**	14	17	H	0	**	
Benzo(g,h,i)perylene	ND	0.33	is.	11	Bř	ft	85	**	
Surrogate: 2-Fluorophenol	A 1 MAD	52.6 %	50-1	29	н	n	H	11	
Surrogate: Phenol-d6		90.3 %	50-1		"	n	11	#	
Surrogate: Nitrobenzene-d5		88.6 %	50-1		**	n	**	n	
_		96.9 %	50-1		н	"	"	"	
Surrogate: 2-Fluorobiphenyl		9U. F 70	20-1						

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Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB1-FL-6' 15K1139-10 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keyst	tone Labora	atories, l	Inc Nev	vton				
Determination of Base/Neutral/Aci	d Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		151 %	54-	140	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		96.0 %	50-	124	н	"	н	"	
Determination of Physical/Convent	ional Chemistry	Parameters	\$						
% Solids	85.2	0.1	%	1	11,50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-SW-North 3' 15K1139-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	cid Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33 1	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	"	A	ti	tt	11	11	
Aniline	ND	0.33	11	g	Ħ	11	11	2f	
Bis(2-Chloroethyl) Ether	ND	0.33	**	ŧt.	18	17	11	н	
2-Chlorophenol	ND	0.33	Iţ	н	ęŧ.	tt	н	0	
1,3-Dichlorobenzene	ND	0.33	н	Ħ	ii.	e e	II.	H.	
1,4-Dichlorobenzene	ND	0.33	Ð	is.	В	Ħ	#	Ħ	
Benzyl Alcohol	ND	0.33	**	19	11	91	17	11	
1,2-Dichlorobenzene	ND	0.33	lt.	B	16	n	Ħ	44	
2-Methylphenol	ND	0.33	н	sı	ŧŦ	и	Ð	es	
Bis(2-Chloroisopropyl) Ether	ND	0.33	41	п	н	11	H	н	
n-Nitroso-di-n-propylamine	ND	0.33	**	н	11	Ħ	н	11	
(3 & 4)-Methylphenol	ND	0.33	H.	Ħ	11	Ð	11	48	
Hexachloroethane	ND	0.33	и	†1	H	u	17	18	
Nitrobenzene	ND	0.33	11	13	н	11	#	rt	
Isophorone	ND	0.33	*	**	Ħ	#1	н	11	
2-Nitrophenol	ND	0.33	#	b	t.	n	rt.	şt	
2,4-Dimethylphenol	ND	0.33	H	ft	98	4	#	n	
Bis(2-Chloroethoxy) Methane	ND	0.33	11	u	H	by	0	fe	
2,4-Dichlorophenol	ND	0.33	11	**	19	+1	н	ts	
1,2,4-Trichlorobenzene	ND	0.33	#	Ħ	ţ;	u	n	45	
Naphthalene	ND	0.33	Ħ	į)	9	11	#	st	
4-Chloroaniline	ND	0.33	11	0	н	lt	н	74	
Hexachlorobutadiene	ND	0.33	f#	Ħ	**	a	n	it	
4-Chloro-3-methylphenol	ND	0.33	13	Ħ	В	Ħ	16	Ħ	
2-Methylnaphthalene	ND	0,33	11	#	н	18	Ħ	†I	
Hexachlorocyclopentadiene	ND	0.33	11	**	+1	н	11	er	
2,4,6-Trichlorophenol	ND	0.33	48	Ħ	e	87	Ħ	es	
2,4,5-Trichlorophenol	ND	1,65	1 t	Ħ	br	Ħ	27	н	
2-Chloronaphthalene	ND	0.33	**	n	11	41	н	**	
2-Nitroaniline	ND	1,65	ft	íı	Ţŝ	43	**	ti	
Dimethylphthalate	ND	0.33	17	Ħ	n	Ħ	15	93	
Acenaphthylene	ND	0.33	r)	11	br	Ħ	#	п	
2,6-Dinitrotoluene	ND	0.33	*1	47	ft	+1	ıı	14	
3-Nitroaniline	ND ND	1.65	**	91	77	11	**	at.	
Acenaphthene	ND	0.33	Ħ	##	t#	H	ŧ#.	н	
леснаришене	MD	0.55							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB2-SW-North 3' 15K1139-11 (Soil)

Project Manager: Adam Newman

Reporting		***	***				
	· · · · · · · · · · · · · · · · · · ·	*******		Prepared	Analyzed	Method	Notes
stone Labo	ratories, l	nc New	vton				
Compounds							
1.65	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
0.33		**	11	(1	н	Ħ	
0.33	н	#ř	14	55	10	ŧŗ	
0.66	Ħ	ri .	Ħ	11	в	H	
0.33	ti	n	Ħ	H	11	#4	
0.33	н	14	n	tt	Ħ	O O	
0.33	n	#	14	Ħ	ir.	FF	
0.66	f#	tr	1)	TE	n	n	
1.65	11	**	**	11	**	ii .	
0.33	ii	14	н	n	11	#1	
0.33	11	11	н	Ħ	Ħ	Et	
0.33	1÷	19	0	tt.	н	¥	
0.33	"	Ħ	Pf	Ħ	tt.	et	
0.66	1)	11	łı	łı	Ħ	ti.	
0.33	Ħ	EP.	97	U	31	Ħ	
0.33	11	41	н	H	9	ft	
0.33	#!	(t	n	Ħ	я	IJ	
0.33	1 4	Ħ	В	n	Ħ	н	
0.33	fr fr	11	k	tf	В	н	
0.33	fI	•	ŧŧ	n	+1	**	
0.33	t†	Ħ	Iţ	tŧ	u	NF.	
0.33	16	Ħ	Ħ	11	н	н	
0.33	†I	n	44	U	ŧr	Ħ	
0.33	ff	Ħ	15	11	ii.	n	
0.33	5\$	Ħ	Ħ	Ħ	E\$	Ħ	
0.33	н	ft.	n	4!	н	Ħ	
0.66	71	**	U	**	U	88	
0.33	44	н	н	н	н	н	
0.33	н	43	11	u	ħ	+5	
0.33	tI	11	0	ш	17	н	
0.33	**	н	В	#	P	11	
0.33	н	18	H	19	73	35	
48.9 %	50-1	29	"	и	11	n	S-07
88.0 %	50-1	32	"	"	"	**	
			11	"	n	n	
			"	tt.	n	"	
	Limit Pstone Labo Compounds 1.65 0.33 0.66 0.33 0.33 0.33 0.33 0.33 0.33	Limit Units Pestone Laboratories, I Compounds 1.65 mg/kg dry 0.33 " 0.66 " 0.33 " 0.33 " 0.66 " 1.65 " 0.33 "	Limit Units Dilution Pestone Laboratories, Inc New	Limit Units Dilution Batch Pestone Laboratories, Inc Newton 1.65 mg/kg dry	Limit Units Dilution Batch Prepared	Limit Units Dilution Batch Prepared Analyzed	Limit Units Dilution Batch Prepared Analyzed Method Prepared Analyzed Prepared Analyzed

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB2-SW-North 3' 15K1139-11 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories,	Inc Nev	vton				
Determination of Base/Neutral/Ac	cid Extractable Co	ompounds							
Surrogate: 2,4,6-Tribromophenol		143 %	54-	140	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		86.1 %	50-	124	н	#	11	и .	
Determination of Physical/Conver	ntional Chemistry	Parameters	6						
% Solids	80.7	0.1	%	1	11.50101	11/30/05	11/30/05	% calculation	····

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-SW-East 3' 15K1139-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	Key	stone Labor	atories, I	nc Nev					
Determination of Base/Neutral/Acid	l Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	ı	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	11	н	ŧŧ	Ħ	Ħ	#	
Aniline	ND	0.33	11	H	H	Ħ	ŧ	ti	
Bis(2-Chloroethyl) Ether	ND	0.33	11	n	**	tt.	#	tt	
2-Chlorophenol	ND	0.33	+1	Ħ	#1	Ħ	Ħ	35	
1,3-Dichlorobenzene	ND	0.33	##	19	0	Ħ	†1	Ħ	
1,4-Dichlorobenzene	ND	0.33	It	1)	н	0	15	11	
Benzyl Alcohol	ND	0.33	II .	29	11	n	11	tr.	
1,2-Dichlorobenzene	ND	0.33	n	н	U	н	н	n	
2-Methylphenol	ND	0.33	11	B	11	н	n	н	
Bis(2-Chloroisopropyl) Ether	ND	0.33	н	41	ff	U	**	11	
n-Nitroso-di-n-propylamine	ND	0.33	1)	n	н	n	If	n	
(3 & 4)-Methylphenol	ND	0.33	11	A	a	н	**	Ħ	
Hexachloroethane	ND	0.33	11	†I	н	ŧ!	11	0	
Nitrobenzene	ND	0.33) r	t	11	tr	84	11	
Isophorone	ND	0.33	н	н	е	Ħ	ч	н	
2-Nitrophenol	ND	0.33	16	Ħ	H.	11	n	it	
2,4-Dimethylphenol	ND	0.33	n	17	59	B	Ħ	tf	
Bis(2-Chloroethoxy) Methane	ND	0.33	†1	n	9	ft	н	н	
2,4-Dichlorophenol	ND	0.33	Ħ	31	n	a	iŢ	33	
1,2,4-Trichlorobenzene	ND	0.33	II.	**	Ħ	54	Ħ	e	
Naphthalene	ND	0.33	11	B	ti	H	n	If	
4-Chloroaniline	ND	0.33	**	Ħ	u	H	0	43	
Hexachlorobutadiene	ND	0.33	1º	ŧı	н	is	Ħ	q	
4-Chloro-3-methylphenol	ND	0.33	U .	н	Ħ	tt	#1	FF	
2-Methylnaphthalene	ND	0.33	11	н	**	ti	1)	+1	
-Texachlorocyclopentadiene	ND	0.33	11	34	"	a	11	ti .	
2,4,6-Trichlorophenol	ND	0.33	Ħ	19	Ħ	bf	nì	Ħ	
2,4,5-Trichlorophenol	ND	1.65	11	n	ti.	н	19	н	
2-Chloronaphthalene	ND	0.33	0	я	n	a	n	13	
Dimethylphthalate	ND	0.33	41	9	H	9	я	Ħ	
2-Nitroaniline	ND	1,65	n	98	n	st	8	Ħ	
Acenaphthylene	ND	0.33	Ħ	ff	и	ţ1	Ħ	27	
2,6-Dinitrotoluene	ND	0.33	10	tt	**	**	**	н	
3-Nitroaniline	ND	1.65)t	11	#2	Ħ	19	19	
Acenaphthene	ND	0.33	11	H	ŧŧ.	Ħ	14	EF	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-SW-East 3' 15K1139-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note
	•	stone Labor	atories, I	nc New	vton			·	
Determination of Base/Neutral/A	cid Extractable C								
2,4-Dinitrophenol	ND		mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	11	žE	Ħ	**	*!	43	
2,4-Dinitrotoluene	ND	0.33	ft.	н	U	H	11	51	
4-Nitrophenol	ND	0.66	11	Ð	n	ŧŧ	H	Ħ	
Diethyl Phthalate	ND	0.33	C\$	Ħ	+1	15	n	Ð	
Fluorene	ND	0.33	11	*1	tt	Ħ	tţ	Ħ	
4-Chlorophenyl Phenyl Ether	ND	0.33	**	3	**	**		ft	
4-Nitroaniline	ND	0.66	15	Ħ	u	Ħ	II	Pt	
4,6-Dinitro-2-methylphenol	ND	1.65	Ħ	11	14	fi .	*3	81	
N-Nitrosodiphenylamine	ND	0.33	**	tf	41	Ħ	11	0	
Azobenzene	ND	0.33	n	H	н	e	Př	Ħ	
4-Bromophenyl Phenyl Ether	ND	0.33	Ħ	1)	#	n	n	+3	
Hexachlorobenzene	ND	0.33	ŧŧ.	r)	9	19	н	31	
Pentachlorophenol	ND	0.66	11	11	f†	**	11	n	
Phenanthrene	ND	0.33	13	11	fl	t)	ti.	11	
Anthracene	ND	0.33	IÌ	př	11	Ħ	**	ij.	
Di-n-butyl Phthalate	ND	0.33	**	ft	15	11	и	н	
Fluoranthene	ND	0.33	11	1)	7	11	**	ti	
Benzidine	ND	0.33	tı	Ħ	eş	19	EF .	н	
Pyrene	ND	0.33	11	11	Ħ	н	19	+1	
Butyl Benzyl Phthalate	ND	0.33	11	n	16	ti	ŧi	tt	
Benzo(a)anthracene	ND	0.33	11	Ħ	ŧs	**	н	n	
Chrysene	ND	0.33	#	n	ŧ	Ħ	13	33	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	n .	Ħ	19	U	Ħ	EQ.	
Di-n-octyl Phthalate	ND	0.33	#1	ø	†r	ty	n	**	
Indeno(1,2,3-cd)Pyrene	ND	0.33	Ħ	H	H	11	#	55	
3,3'-Dichlorobenzidine	ND	0.66	ti	n	łf	H	Ħ	+1	
Benzo(b)Fluoranthene	ND	0.33	#	17	24	11	n	11	
Benzo(k)Fluoranthene	ND	0.33	12	fž	j e	н	Ħ	н	
Benzo(a)Pyrene	ND	0.33	ff	0	ij	Ħ	77	**	
Dibenzo(a,h)anthracene	ND	0.33	tŧ	tf	**	**	fŧ	н	
Benzo(g,h,i)perylene	ND	0.33	tt	ti	#4	11	a	n	
Surrogate: 2-Fluorophenol	1112	44.8 %	50-1.	29	n	n	"	"	S-07
surrogate: 2-r tuorophenoi Surrogate: Phenol-d6		83.6%	50-1.		и	#	"	rr rr	0 1/1
		88.4 %	50-1		11	"	**	31	
Surrogate: Nitrobenzene-d5					¥	e	n	n	
Surrogate: 2-Fluorobiphenyl		96.3 %	50-I	12	,,	**	**	.,	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB2-SW-East 3' 15K1139-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keyst	one Labora	atories,	Inc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Cor	npounds							
Surrogate: 2,4,6-Tribromophenol		149 %	54	140	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		88.4 %	50-	124	н	#	7#	н	
Determination of Physical/Conver	ntional Chemistry l	Parameters	;						
% Solids	82.0	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	****

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

EXB2-SW-West 3' 15K1139-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable C	Compounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	н	15	R	н	tf	ŧŧ	
Aniline	ND	0.33	Ħ	Ħ	*	tf	н	ы	
Bis(2-Chloroethyl) Ether	ND	0.33	11	If	Ħ	и	ų	U	
2-Chlorophenol	ND	0.33	n	31	n	Ħ	н	н	
1,3-Dichlorobenzene	ND	0.33	Ħ	н	B	Ħ	N	a	
1,4-Dichlorobenzene	ND	0.33	11	Ħ	#	n	**	rt .	
Benzyl Alcohol	ND	0.33	#1	tr	n	ft.	н	11	
1,2-Dichlorobenzene	ND	0.33	??	11	Ħ	ŧŧ	н	*1	
2-Methylphenol	ND	0.33	H	н	ri .	fī	0	0	
Bis(2-Chloroisopropyl) Ether	ND	0.33	n	11	"	ft	Ħ	H	
n-Nitroso-di-n-propylamine	ND	0.33	t#	11	14	n	**	n	
(3 & 4)-Methylphenol	ND	0.33		н	ŧι	te	4)	11	
Hexachloroethane	ND	0.33	и	11	11	EF	н	51	
Nitrobenzene	ND	0.33	n	16	13	n	н	н	
Isophorone	ND	0.33	#	Ħ	#1	**	n	41	
2-Nitrophenol	ND	0.33	н	11	п	b	Ħ	n	
2,4-Dimethylphenol	ND	0.33	Ħ	11	Ħ	ţi.	н	#1	
Bis(2-Chloroethoxy) Methane	ND	0.33	"	lt.	11	"	n	a	
2,4-Dichlorophenol	ND	0.33	II	н	U	н	Ħ	BY	
1,2,4-Trichlorobenzene	ND	0.33	ŧF	ts	Ħ	Ŧ	0	ti.	
Naphthalene	ND	0.33	11	ft	11	rí	u	11	
4-Chloroaniline	ND	0.33	н	şı.	11	If	78	и	
Hexachlorobutadiene	ND	0.33	#	ø	н	19	0	tt	
4-Chloro-3-methylphenol	ND	0.33	H	84	**	Ħ	Ħ	EF	
2-Methylnaphthalene	ND	0.33	tr	71	н	fī	Ŧŧ	11	
Hexachlorocyclopentadiene	ND	0.33	**	tt	Př	*	11	**	
2,4,6-Trichlorophenol	ND	0.33	11	lŧ	0	n	Ħ	11	
2,4,5-Trichlorophenol	ND	1.65	†!	Ħ	18	+1*	ŧ!	Ħ	
2-Chloronaphthalene	ND	0.33	tf	17	11	II.	#	0	
Dimethylphthalate	ND	0.33	112	Ħ	1)	Ħ	н	н	
2-Nitroaniline	ND	1.65	at	\$1	В	n	n	it.	
Acenaphthylene	ND	0.33	r#	11	ff	n	17	**	
2,6-Dinitrotoluene	ND	0.33	#	Ħ	n	IV	Ħ	14	
3-Nitroaniline	ND	1.65	af	35	Ħ	и	**	řt.	
Acenaphthene	ND	0.33	if	ri	#	n	ÞŦ	et	
rondring	1.447	0.55							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-SW-West 3' 15K1139-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable C	ompounds							
2,4-Dinitrophenol	ND	1.65	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	· · · · · · · · · · · · · · · · · · ·
Dibenzofuran	ND	0.33	+1	11	Ħ) f	Ħ	EF	
2,4-Dinitrotoluene	ND	0.33	11	11	*1	Ħ	11	n	
4-Nitrophenol	ND	0.66	H	18	tt	**	11	11	
Diethyl Phthalate	ND	0.33	ŧı	я	Ħ	bş .	Ħ	iŧ	
Fluorene	ND	0.33	t ?	H	fl	н	ti	13	
4-Chlorophenyl Phenyl Ether	ND	0.33	It	#	n	u	**	u	
4-Nitroaniline	ND	0.66	11	1)	P	Ħ	19	Я	
4,6-Dinitro-2-methylphenol	ND	1.65	11	16	13	Ħ	at .	Ħ	
N-Nitrosodiphenylamine	ND	0.33	н	н	n	U	17	n	
Azobenzene	ND	0.33	н	11	18	Ħ	11	н	
4-Bromophenyl Phenyl Ether	ND	0.33	†f	11	н	Ħ	n	11	
Hexachlorobenzene	ND	0.33	н	н	n	0	н	Ħ	
Pentachlorophenol	ND	0.66	11	Ð	11	17	п	н	
Phenanthrene	ND	0.33	1‡	tt	a	1)	н	4	
Anthracene	ND	0.33	IŦ	В	Ŋ	#	11	**	
Di-n-butyl Phthalate	ND	0.33	*1	11	##	н	11	u	
Fluoranthene	ND	0.33	n	Ħ	*	и	38	14	
Benzidine	ND	0.33	l†	14	Ħ	ŧ Ţ	r)	Ħ	
Pyrene	ND	0.33	Ŧ ?	n	tt	*1	n	11	
Butyl Benzyl Phthalate	ND	0.33	n	b)	n	n	н	н	
Benzo(a)anthracene	ND	0.33	n	Ħ	ŧŧ	n	ŧI	11	
Chrysene	ND	0.33	11	Ð	tt	#1	#	Œ	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	11	н	**	11	łą	89	
Di-n-octyl Phthalate	ND	0.33	н	71	17	Ħ	ąt	11	
Indeno(1,2,3-cd)Pyrene	ND	0.33	h	ft	13	41	31	н	
3,3'-Dichlorobenzidine	ND	0.66	91	Ħ	n	n	н	н	
Benzo(b)Fluoranthene	ND	0.33	u	n	41	н	11	**	
Benzo(k)Fluoranthene	ND	0.33	17	11	13	**	s +	2)	
Benzo(a)Pyrene	ND	0.33	1)	Ħ	н	u	ţı	н	
Dibenzo(a,h)anthracene	ND	0.33	н	**	41	fl	19	25	
Benzo(g,h,i)perylene	ND	0.33	H	**	14	0	11	н	
Surrogate: 2-Fluorophenol		49.2 %	50-1	29	n	11	tt	n	S-07
Surrogate: Phenol-d6		94.0 %	50-1		"	u	9	77	
Surrogate: Nitrobenzene-d5		79.1 %	50-1		"	"	"	н	
-		87.4 %	50-1		"	Ħ	#	**	
Surrogate: 2-Fluorobiphenyl		07.4 70	50-1	E du					

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB2-SW-West 3' 15K1139-13 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labor	atories, l	lnc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol	, , , , , , , , , , , , , , , , , , , ,	139 %	54-,	140	1K53018	11/30/05	11/30/05	EPA 8270C	
Surrogate: Terphenyl-dl4		90.8 %	50-1	124	u	и	θ	n	
Determination of Physical/Conven	tional Chemistry	Parameters	3						
% Solids	82.2	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported:

12/20/05 14:49

EXB2-SW-South 3' 15K1139-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	cid Extractable C	ompounds							
N-Nitrosodimethylamine	ND		mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	18	18	ŧŧ	Ħ	Ð	Ħ	
Aniline	ND	0.33	Ħ	В	tt	Ħ	tf	ŧŧ	
Bis(2-Chloroethyl) Ether	ND	0.33	11	n	4	Ħ	H	47	
2-Chlorophenol	ND	0.33	ti	Ħ	Ħ	11	11	n	
1,3-Dichlorobenzene	ND	0.33	##	ŧ	Ħ	B	п	Ħ	
1,4-Dichlorobenzene	ND	0.33	f T	1)	Ħ	н	11	н	
Benzyl Alcohol	ND	0.33	n	n	n	19	н	17	
1,2-Dichlorobenzene	ND	0.33	н	н	e	tř.	Ft .	ø	
2-Methylphenol	ND	0.33	†‡	Ħ	н	1 F	18	н	
Bis(2-Chloroisopropyl) Ether	ND	0.33	11	1)	Ħ	н	я	н	
n-Nitroso-di-n-propylamine	ND	0.33	11	**	ıı	*	by	· ·	
(3 & 4)-Methylphenol	ND	0.33	11	я	В	11	16	4	
Hexachloroethane	ND	0.33	Ħ	11	#1	f†	a	ы	
Nitrobenzene	ND	0.33	r‡	11	ŧį	н	0	**	
Isophorone	ND	0.33	11	**	и	**	H	"	
2-Nitrophenol	ND	0.33	· n	Ħ	n	(f	ti	Ħ	
2,4-Dimethylphenol	ND	0.33	Ħ	**	ff	lτ	19	н	
Bis(2-Chloroethoxy) Methane	ND	0.33	18	19	0	11	It	а	
2,4-Dichlorophenol	ND	0.33	It	Ħ	17	17	¥	ef .	
1,2,4-Trichlorobenzene	ND	0.33	#I	Ħ	16	#	IJ	H	
Naphthalene	ND	0.33	Ħ	સ	Ħ	H	n	Ħ	
4-Chloroaniline	ND	0.33	11	17	а	11	**	11	
Hexachlorobutadiene	ND	0.33	It	н	H	#1	Ħ	e	
4-Chloro-3-methylphenol	ND	0.33	Ħ	н	Ħ	ń	17	н	
2-Methylnaphthalene	ND	0.33	**	tf	14	п	0	н	
Hexachlorocyclopentadiene	ND	0.33	"	i)	9	tf.	1+	13	
2,4,6-Trichlorophenol	ND	0.33	!!	et	16	11	И	53	
2,4,5-Trichlorophenol	ND	1.65	п	fr	n	u.	**	Ħ	
2-Chloronaphthalene	ND	0.33	**	\$2	ħ	rt		11	
2-Nitroaniline	ND	1.65	áy	17	**	f1	н	et	
Dimethylphthalate	ND	0.33	**	B	ŧŧ	17	II.	В	
Acenaphthylene	ND	0.33	#1	#1	11	H	19	ff.	
2,6-Dinitrotoluene	ND	0.33	ff	n	Ħ	#	**	H	
3-Nitroaniline	ND	1.65	1#	15	15	+3	#	s‡	
Acenaphthene	ND	0.33	ıt	Ħ	35	#	14	n	
/ teenquitione	4.4	0.00							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-SW-South 3' 15K1139-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	•	stone Labor	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	cid Extractable C	ompounds							
2,4-Dinitrophenol	ND		mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	ŧ,	26	(T	tţ	Ħ	u	
2,4-Dinitrotoluene	ND	0.33	#	н	l4	Ħ	1)	Ħ	
4-Nitrophenol	ND	0.66	11	33	ų	0	Ħ	11	
Diethyl Phthalate	ND	0.33	11	"	ti	H	tt.	U	
Fluorene	ND	0.33	ff	Ħ	Ħ	ķ 1	88	Ħ	
4-Chlorophenyl Phenyl Ether	ND	0.33	11	11	Ħ	11	Ħ	±1	
4-Nitroaniline	ND	0.66	Ħ	17	н	11	tf	0	
4,6-Dinitro-2-methylphenol	ND	1.65	74	Ω	н	11	n	н	
N-Nitrosodiphenylamine	ND	0.33	R	4\$	11	n	Ħ	n	
Azobenzene	ND	0.33	11	Ħ	#	Ħ	ti	11	
4-Bromophenyl Phenyl Ether	ND	0.33	f1	14	ff	11	14	н	
Hexachlorobenzene	ND	0.33	91	H	ŧŧ.	e e	Н	19	
Pentachlorophenol	ND	0.66	11	tt	e	t†	સ	11	
Phenanthrene	ND	0.33	11	ff	н	п	11	н	
Anthracene	ND	0.33	16	11	+1	**	н	н	
Di-n-butyl Phthalate	ND	0.33	#1	11	н	H	**	n	
Fluoranthene	ND	0.33	#1	Ħ	H	Ħ		Ħ	
Benzidine	ND	0.33	4	a	£1	п	н	**	
Pyrene	ND	0.33	þi .	5 1	ŧ	P	u	3)	
Butyl Benzyl Phthalate	ND	0.33	11	н	Ħ	н	ij	FF	
Benzo(a)anthracene	ND	0.33	n	Ð	**	**	н	44	
Chrysene	ND	0.33	1)	в	*	n	0	H	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	Ŧt	fi	? f	łı	H	н	
Di-n-octyl Phthalate	ND	0.33	115	11	tı	U	şı	ıt	
Indeno(1,2,3-cd)Pyrene	ND	0.33	11	Ħ	ft	Ħ	15	by	
3,3'-Dichlorobenzidine	ND	0.66	e e	†1	#	er	19	*1	
Benzo(b)Fluoranthene	ND	0.33	f ‡	15	91	В	it	11	
Benzo(k)Fluoranthene	ND	0.33	**	H	ft	19	11	ŧŧ	
Benzo(a)Pyrene	ND	0.33	f‡	**	a	**	#1	79	
Dibenzo(a,h)anthracene	ND	0.33	Ħ	n	n	н	19	29	
Benzo(g,h,i)perylene	ND	0.33	ŧı	ti	и	ŧ	Ħ	F3	
Surrogate: 2-Fluorophenol	3 T Marie	37.6 %	50-1.	29	n	n	u	a	S-07
Surrogate: Phenol-d6		81.5 %	50-1.		77	"	**	n	
**		88.6 %	50-1		н	#	**	"	
Surrogate: Nitrobenzene-d5		98.8 %	50-1 50-1		H	11	7.5	н	
Surrogate: 2-Fluorobiphenyl		70.0 %	30-1	12					

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported:

12/20/05 14:49

EXB2-SW-South 3' 15K1139-14 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	tone Labora	itories, I	nc Nev	vton				
Determination of Base/Neutral/Acid	Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		134 %	54-1	40	1K53018	11/30/05	11/30/05	EPA 8270C	
Surrogate: Terphenyl-dl4		96.8 %	50-1	24	н	n	r e	n	
Determination of Physical/Convention	onal Chemistry	Parameters							
% Solids	84.0	0.1	%	l	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

EXB2-FL-6' 15K1139-15 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	eid Extractable C	ompounds							
N-Nitrosodimethylamine	ND	0.33	mg/kg dry	1	IK53018	11/30/05	11/30/05	EPA 8270C	
Phenol	ND	0.33	17	48	11	n	0	н	
Aniline	ND	0.33	n	**	t†	u u	н	16	
Bis(2-Chloroethyl) Ether	ND	0.33	f1	н	н	Ħ	Ð	Ħ	
2-Chlorophenol	ND	0.33	If	tī	11	u	в	Ħ	
1,3-Dichlorobenzene	ND	0.33	и	Ħ	Ħ	B	łı	11	
1,4-Dichlorobenzene	ND	0.33	n	11	11	Ħ	#	н	
Benzyl Alcohol	ND	0.33	1#	U	11	(‡	Ħ	ŧ	
I,2-Dichlorobenzene	ND	0.33	и	Ħ	В	#	IJ	В	
2-Methylphenol	ND	0.33	ŧ1	**	et	ŢĬ	#	н	
Bis(2-Chloroisopropyl) Ether	ND	0.33	и	n	U	H	Ħ	11	
n-Nitroso-di-n-propylamine	ND	0.33	H	Ħ	н	स	11	88	
(3 & 4)-Methylphenol	ND	0.33	#	9	48	**	Ħ	**	
Hexachloroethane	ND	0.33	17	0	e	H	11	12	
Nîtrobenzene	ND	0.33	n	h	н	31	*1	н	
Isophorone	ND	0.33	ŧŧ	n	H	a	н	11	
2-Nitrophenol	ND	0.33)r	D)	66	11	ρ	n	
2,4-Dimethylphenol	ND	0.33	11	ft	12	0	81	69	
Bis(2-Chloroethoxy) Methane	ND	0.33	1f	3)	a	n	Ħ	11	
2,4-Dichlorophenol	ND	0.33	#	ŧŗ	н	11	11	11	
1,2,4-Trichlorobenzene	ND	0.33	n	12	11	(I	Ħ	н	
Naphthalene	ND	0.33	ŧŧ	tt	11	Ħ	ø	55	
4-Chloroaniline	ND	0.33	11	Ħ	Ħ	ij.	Ħ	B	
Hexachlorobutadiene	ND	0.33	er e	#1	¢#	17	ļſ	e e	
4-Chloro-3-methylphenol	ND	0.33	11	15	a	11	0	#	
2-Methylnaphthalene	ND	0.33	ft.	Ħ	Ħ	n	Ħ	a	
Hexachlorocyclopentadiene	ND	0.33	ŧf	Ħ	f)	Ħ	n	Ħ	
2,4,6-Trichlorophenol	ND	0.33	и	by	**	**	"	H	
2,4,5-Trichlorophenol	ND	1.65	31	ft	71	Ħ	13	19	
2-Chloronaphthalene	ND	0.33	t\$	e	u	łŧ	já	H	
Dimethylphthalate	ND	0.33	71	P	H	**	Ħ	w	
2-Nitroaniline	ND	1.65	11	41	11	If	11	11	
Acenaphthylene	ND	0.33	11	8	#	79	Ħ	la	
2.6-Dinitrotoluene	ND	0.33	11	ft	Ħ	29	†2	še	
3-Nitroaniline	ND	1.65	н	v	"	н	11	4	
Acenaphthene	ND	0.33	н	n	Ħ	×	Ħ	н	
t smostment the state of the st	1,12	0.55							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-FL-6' 15K1139-15 (Soil)

Analyte	Result	Reporting Limit		Dilution	Batch	Prepared	Analyzed	Method	Notes
7,774244	Key	stone Labo	ratories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	•		,						
2,4-Dinitrophenol	ND	1.65	mg/kg dry	1	1K53018	11/30/05	11/30/05	EPA 8270C	
Dibenzofuran	ND	0.33	ff	H	n	Ħ	H	Ħ	
2,4-Dinitrotoluene	ND	0.33	t#	Ħ	17	Ħ	Ħ	n	
4-Nitrophenol	ND	0.66	t t	#1	**	11	**	U	
Diethyl Phthalate	ND	0.33	ti	**	Ħ	ŧţ	11	n	
Fluorene	ND	0.33	fl	Ħ	n	17	H	ft	
4-Chlorophenyl Phenyl Ether	ND	0.33	ff	11	Ħ	Ħ	Ħ	B	
4-Nitroaniline	ND	0.66	11	Ħ	H	tt.	н	Ð	
4,6-Dinitro-2-methylphenol	ND	1.65	"	н	#1	**	0	Ü	
N-Nitrosodiphenylamine	ND	0.33	В	14	11	Ħ	G.	п	
Azobenzene	ND	0.33	t)	11	"	н	ŧ1	н	
4-Bromophenyl Phenyl Ether	ND	0.33	н	11	Pt	er er	#1	#	
Hexachlorobenzene	ND	0.33	н	н	11	57	ŧi	1ř	
Pentachlorophenol	ND	0.66	н	Ħ	tt	ŧf	n	ft	
Phenanthrene	ND	0.33	ŦĬ	11	14	11	н	н	
Anthracene	ND	0.33	11	11	n	U	#1	n	
Di-n-butyl Phthalate	ND	0.33	11	Ħ	ŧi	H	ø	#	
Fluoranthene	ND	0.33	15	ŧI	н	H	n	Ħ	
Benzidine	ND	0.33	+1	a	11	Ħ	ir	16	
Pyrene	ND	0.33	Ħ	tf	#	u	11	et .	
Butyl Benzyl Phthalate	ND	0.33	#	Ħ	Ħ	н	11	9	
Benzo(a)anthracene	ND	0.33	II .	Ħ	17	E#	n	Ħ	
Chrysene	ND	0.33	11	**	н	Ħ	Ħ	19	
Bis(2-Ethylhexyl) Phthalate	ND	0.33	Ħ	ıı	Ħ	#1	н	**	
Di-n-octyl Phthalate	ND	0.33	18	Ħ	if	**	¥	Ħ	
Indeno(1,2,3-cd)Pyrene	ND	0.33	. 41	н	41	**		Ħ	
3,3'-Dichlorobenzidine	ND	0.66	11	it.	"	н	н	н	
Benzo(b)Fluoranthene	ND	0.33	*1	tt.	H	Ð	н	42	
Benzo(k)Fluoranthene	ND	0.33	**	?†	fI	15	*1	15	
Benzo(a)Pyrene	ND	0.33	**	N	**	4	15	н	
Dibenzo(a,h)anthracene	ND	0.33	Ħ	14	17	R	н	n	
Benzo(g,h,i)perylene	ND	0.33	*1	41	13	n	+1	H	
Surrogate: 2-Fluorophenol		50.5 %	50-1	29	ff.	n	п	#	
Surrogate: Phenol-d6		90.9 %	50-1	32	"	11	"	"	
Surrogate: Nitrobenzene-d5		80.5 %	50-1	10	#	"	н	"	
Surrogate: 2-Fluorobiphenyl		84.4 %	50-1		n	n	"	,,	
Limitoguic. 2-1 tum outpricity		5,.,,							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

EXB2-FL-6' 15K1139-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
, , , , , , , , , , , , , , , , , , , ,	Keys	tone Labor	atories,	Inc Nev	vton				
Determination of Base/Neutral/Ac	id Extractable Co	mpounds							
Surrogate: 2,4,6-Tribromophenol		142 %	54-	140	1K53018	11/30/05	11/30/05	EPA 8270C	S-07
Surrogate: Terphenyl-dl4		93.9 %	50-	124	"	"	fr	n	
Determination of Physical/Conver	ntional Chemistry	Parameter:	s						
% Solids	83.0	0.1	%	<u>I</u>	11.50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

Dup-1 15K1139-16 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keys	stone Labor	atories, l	nc Nev	vton				
Determination of Extractable Petrol	eum Hydrocar	bons							
TEH, as kerosene	ND	5	mg/kg	1	1K53019	11/30/05	12/01/05	lowa OA-2	
TEH, as mineral spirits	ND	5	В	Ħ	it	**	Ħ	11	
TEH, as hydraulic fluid	ND	5	11	Ħ	H	н	11	tf	
TEH, as gasoline	ND	5	ŦI	tt	Ħ	11	†1	н	
TEH, as #2 diesel fuel	5	5	11	15	н	¥1	11	н	
TEH, as waste oil	ND	5	**	n	и	ti .	14	11	
Total Extractable Hydrocarbons	5	5	**	11	11	n	ц	0	
Surrogate: Pentacosane		98.0 %	50-1	31	"	n	"	**	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 12/20/05 14:49

Dup-2 15K1139-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	•	stone Labor	atories, I	nc Nev	vton				
Determination of Base/Neutral/Ac	cid Extractable C	ompounds							
N-Nitrosodimethylamine	ND		mg/kg dry	ı	1K53018	11/30/05	12/01/05	EPA 8270C	
Phenol	ND	0.33	þi	**	tr.	и	ŧ1	let .	
Aniline	ND	0.33	11	n	H	If	0	ti	
Bis(2-Chloroethyl) Ether	ND	0.33	**	14	11	н	**	41	
2-Chlorophenol	ND	0.33	Ħ	If	Ħ	12	P	u	
1,3-Dichlorobenzene	ND	0.33	tt	Ħ	Ħ	ţ1	11	11	
1,4-Dichlorobenzene	ND	0.33	11	Ħ	n	u	**	NF .	
Benzyl Alcohol	ND	0.33	II	73	tf	U	tt	15	
1,2-Dichlorobenzene	ND	0.33	Ħ	11	11	н	11	11	
2-Methylphenol	ND	0.33	1 1	11	τŧ	Ħ	P	0	
Bis(2-Chloroisopropyl) Ether	ND	0.33	н	H	Ħ	ft	н	ti	
n-Nitroso-di-n-propylamine	ND	0.33	Ħ	H	#1	п	ri	9	
(3 & 4)-Methylphenol	ND	0.33	1†	н	n	Ø	łı	н	
Hexachloroethane	ND	0.33	я	nt	11	tí	u	н	
Nitrobenzene	ND	0.33	11	31	"	t;	**	14	
Isophorone	ND	0.33	н	11	н	н	Ħ	tr.	
2-Nitrophenol	ND	0.33	†ŧ	16	Ħ	f 1	н	a	
2,4-Dimethylphenol	ND	0.33	1)	87	U	11	tt	я	
Bis(2-Chloroethoxy) Methane	ND	0.33	1‡	н	0	и	ŧi.	BI	
2,4-Dichlorophenol	ND	0.33	**	19	U	11	11	Ħ	
1,2,4-Trichlorobenzene	ND	0.33	"	n	н	н	n	u	
Naphthalene	ND	0.33	ţì	18	Ħ	Ħ	#1	If	
4-Chloroaniline	ND	0.33	#1	н	11	n	n	B	
Hexachlorobutadiene	ND	0.33	17	Ħ	н	11	11	11	
4-Chloro-3-methylphenol	ND	0.33	f	11	11	ts	н	Ħ	
2-Methylnaphthalene	ND	0.33	li.	a	ы	#	79	0	
Hexachlorocyclopentadiene	ND	0.33	+1	n	ff	R	н	tf	
2,4,6-Trichlorophenol	ND	0.33	11	#	**	u	u	if	
2,4,5-Trichlorophenol	ND	1.65	†1	н	ü	da	ŧf	Ħ	
2-Chloronaphthalene	ND	0.33	#	н	11	t#	R.	**	
Dimethylphthalate	ND	0.33	Ħ	**	11	14	H	0	
2-Nitroaniline	ND	1.65	н	#t	н	\$1	Ħ	i)	
Acenaphthylene	ND	0.33	H	**	н	34	ŧŧ	#	
2,6-Dinitrotoluene	ND	0.33	**	19	v	e e	15	и	
3-Nitroaniline	ND ND	1.65	#	н	ŧŧ	**	51	\$1	
	ND	0.33	1+	н	57	H	ñ	46	
Acenaphthene	ND	0.33							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

Dup-2 15K1139-17 (Soil)

Project Manager: Adam Newman

15K(157-17 (50ff)												
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Note			
	Keys	tone Labor	atories, I	nc New	vton							
Determination of Base/Neutral/Ac	eid Extractable Co	mpounds										
2,4-Dinitrophenol	ND		ng/kg dry	1	1K53018	11/30/05	12/01/05	EPA 8270C				
Dibenzofuran	ND	0.33	lt .	bit	Ħ	Ħ	11	н				
2,4-Dinitrotoluene	ND	0.33	"	*1	Ħ	ŧ	EF	Ħ				
4-Nitrophenol	ND	0.66	17	n	if	н	Ħ	n				
Diethyl Phthalate	ND	0.33	11	0	(I	и	n	н				
Fluorene	ND	0.33	н	н	11	fi.	**	Ħ				
4-Chlorophenyl Phenyl Ether	ND	0.33	H	++	н	11	Ħ	ia .				
4-Nitroaniline	ND	0.66	17	0	fI	H	n	**				
4,6-Dinitro-2-methylphenol	ND	1.65	#	Iŧ	15	н	10	11				
N-Nitrosodiphenylamine	ND	0.33	н	†1	Ħ	ij	Ħ	19				
Azobenzene	ND	0.33	Ħ	11	H	H	n	ii .				
4-Bromophenyl Phenyl Ether	ND	0.33	11	16	**	*1	u	b)				
Hexachlorobenzene	ND	0.33	н	þi	Ħ	11	H	11				
Pentachlorophenol	ND	0.66	11	11	Ħ	Ħ	Ð	n				
Phenanthrene	ND	0.33	1†	#	11	н	33	Ħ				
Anthracene	ND	0.33	"	Ħ	n	π	И	†1				
Di-n-butyl Phthalate	ND	0.33	fl	#!	Ħ	9	н	u				
Fluoranthene	ND	0.33	е	H	ŧŧ	9	15	r i				
Benzidine	ND	0.33	H	44	11	tt	34	ft				
Pyrene	ND	0.33	*1	#1	it	t†	н	+1				
Butyl Benzyl Phthalate	ND	0.33	ff	45	*1	н	n	ш				
Benzo(a)anthracene	ND	0.33	н	11	ij	0	0	н				
Chrysene	ND	0.33	11	н	95	u	н	n				
Bis(2-Ethylhexyl) Phthalate	ND	0.33	tt	н	Ħ	n	0	r.				
Di-n-octyl Phthalate	ND	0.33	B#	**	16	12	18	Ħ				
Indeno(1,2,3-cd)Pyrene	ND	0.33	Ħ	н	Ħ	ii.	н	н				
3,3'-Dichlorobenzidine	ND	0.66	t)	**	η	н	**	0				
Benzo(b)Fluoranthene	ND	0.33	5 ‡	8	Ω	ti .	u	n				
Benzo(k)Fluoranthene	ND	0.33	13	Ħ	8	a	н	я				
Benzo(a)Pyrene	ND	0.33	f1	11	Ħ	n	41	89				
Dibenzo(a,h)anthracene	ND	0.33	10	11	11	13	tf	IF				
Benzo(g,h,i)perylene	ND	0.33	15	н	ís	11	н	**				
Surrogate: 2-Fluorophenol	7.175	45.0 %	50-1.	29	n	n	rr	"	S-07			
surrogate: 2-r tuoropnenoi Surrogate: Phenol-d6		92.1 %	50-1.		"	**	"	"	2 .77			
927		78.3 %	50-1		#	**	#	я				
Surrogate: Nitrobenzene-d5			50-1 50-1		t#	,,	11	s#				
Surrogate: 2-Fluorobiphenyl		88.3 %	30-1	1 2	***	**	**					

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

Dup-2 15K1139-17 (Soil)

Project Manager: Adam Newman

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
	Keyst	one Labora	atories, I	nc Nev	vton			•	
Determination of Base/Neutral/Ac	id Extractable Cor	npounds							
Surrogate: 2,4,6-Tribromophenol		113 %	54-1	40	1K53018	11/30/05	12/01/05	EPA 8270C	
Surrogate: Terphenyl-dl4		89.2 %	50-1	24	11	H	"	"	
Determination of Physical/Conver	ntional Chemistry I	Parameters	3						
% Solids	80.3	0.1	%	1	1L50101	11/30/05	11/30/05	% calculation	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

Determination of Extractable Petroleum Hydrocarbons - Quality Control

Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 15L0116 - 1K53019							<u></u>			
Calibration Check (15L0116-CCV1)				Prepared a	& Analyze	ed: 11/30/0)5			
TEH, as kerosene	1825		mg/kg	2030		89.9	85-115			
TEH, as mineral spirits	2216		ft	2020		110	85-115			
FEH, as hydraulic fluid	2114		18	2020		105	85-115			
TEH, as gasoline	2241		H	2010		111	85-115			
TEH, as #2 diesel fuel	2035		н	2000		102	85-115			
TEH, as waste oil	2095		34	2030		103	85-115			
Surrogate: Pentacosane	48.4		"	52.6		92.0	50-131			
Batch 1K53019 - 3550B OA-2 Sonic						····		-		****
Blank (1K53019-BLK1)		And the second second		Prepared &	& Analyze	ed: 11/30/()5			
TEH, as kerosene	ND	5	mg/kg				rerime.			
TEH, as mineral spirits	ND	5	Ħ							
TEH, as hydraulic fluid	ND	5	0							
TEH, as gasoline	ND	5	**							
TEH, as #2 diesel fuel	ND	5	Ħ							
TEH, as waste oil	ND	5	Ħ							
Total Extractable Hydrocarbons	ND	5	5\$							
Surrogate: Pentacosane	2.29		"	2.58		88.8	50-131			
LCS (1K53019-BS1)				Prepared:	11/30/05	Analyzed	: 12/01/05			
TEH, as #2 diesel fuel	433.9	5	mg/kg	501.5		86.5	65-110			
Surrogate: Pentacosane	2.36		**	2.58		91.5	50-131			
Matrix Spike (1K53019-MS1)	Soi	urce: 15K113	19-01	Prepared:	11/30/05	Analyzed	: 12/01/05			
TEH, as #2 diesel fuel	403.4	5	mg/kg	500.7	ND	80.6	50-110			
Surrogate: Pentacosane	2.47		"	2.57		96.1	50-131			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Spike

Source

%REC

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

RPD

Determination of Extractable Petroleum Hydrocarbons - Quality Control

Keystone Laboratories, Inc. - Newton

Reporting

Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Batch 1K53019 - 3550B OA-2 Sonic							·/···	White 50°	······································	
Matrix Spike Dup (1K53019-MSD1)	Sour	ce: 15K11.	39-01	Prepared:	11/30/05	Analyzed	l: 12/01/05			
TEH, as #2 diesel fuel	418.3	5	mg/kg	501.2	ND	83.5	50-110	3.63	30	
Surrogate: Pentacosane	2.38		"	2.57		92.6	50-131			
Reference (1K53019-SRM1)				Prepared:	11/30/05	Analyzed	1: 12/01/05			
TEH, as #2 diesel fuel	470.7	5	mg/kg	501.5		93.9	70-130			
Surrogate: Pentacosane	2.36		11	2.58		91.5	50-131			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 15L0105 - 1K53018

Calibration Check (15L0105-CCV1)			Prepared & An	alyzed: 11/30	/05	
N-Nitrosodimethylamine	34.89	mg/kg wet	45.00	77.5	80-120	QR-06
Phenol	40.10	н	45.30	88.5	80-120	
Aniline	43.68	u	42.00	104	80-120	
Bis(2-Chloroethyl) Ether	37.90	26	45.00	84.2	80-120	
2-Chlorophenol	50.46	п	44.80	113	80-120	
1,3-Dichlorobenzene	41.12	11	45.00	91.4	80-120	
1,4-Dichlorobenzene	51.65	tf.	45.00	115	80-120	
Benzyl Alcohol	47.79	ts	45.00	106	80-120	
1,2-Dichlorobenzene	43.70	н	45.50	96.0	80-120	
2-Methylphenol	51.39	n	45.40	113	80-120	
Bis(2-Chloroisopropyl) Ether	41.56	11	45.00	92,4	80-120	
n-Nitroso-di-n-propylamine	45.12	It	45.00	100	80-120	
(3 & 4)-Methylphenol	33.61	Ħ	45.00	74.7	80-120	QR-05
Hexachloroethane	42.73	u	45.00	95.0	80-120	
Nitrobenzene	51.14	11	45.00	114	80-120	
Isophorone	45.33	п	45.00	101	80-120	
2-Nitrophenol	37.35	Ħ	45.00	83.0	80-120	
2,4-Dimethylphenol	44.73	11	45.00	99.4	80-120	
Bis(2-Chloroethoxy) Methane	41.17	FF	45.00	91.5	80-120	
2,4-Dichlorophenol	46.81	##	44.60	105	80-120	
1,2,4-Trichlorobenzene	51.29	tt.	45.00	114	80-120	
Naphthalene	45.68	п	42.00	109	80-120	
4-Chloroaniline	40.25	ir	42.00	95.8	80-120	
Hexachlorobutadiene	63.97	18	45.00	142	80-120	QS-02
4-Chloro-3-methylphenol	43.46	H	45.00	96.6	80-120	
2-Methylnaphthalene	50.04	и	45.00	111	80-120	
Hexachlorocyclopentadiene	30.61	**	45.00	68.0	80-120	QR-06
2,4,6-Trichlorophenol	47.98	it	45.00	107	80-120	
2,4,5-Trichlorophenol	46.69	н	45.00	104	80-120	
2-Chloronaphthalene	42.52	11	45.00	94.5	80-120	
Dimethylphthalate	44.66	n	45.00	99.2	80-120	
2-Nitroaniline	31.79	86	42.00	75.7	80-120	QR-06
Acenaphthylene	39.73	Ħ	42.00	94.6	80-120	
2,6-Dinitrotoluene	46.10	11	45.00	102	80-120	
3-Nitroaniline	42.01	n	42.00	100	80-120	
Acenaphthene	40.85	lf	42.00	97.3	80-120	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

		Reporting		Spike	Source		%REC		RPD	Ì
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Ratch	141	0.10	- 1K5301	Q
Daten	1.71		- 118.7.301	73

Calibration Check (15L0105-CCV1)			Prepared & An	alyzed: 11/30	/05	
2,4-Dinitrophenol	43.02	mg/kg wet	45.00	95.6	80-120	
Dibenzofuran	44.07	q	45.00	97.9	80-120	
2,4-Dinitrotoluene	45.17	п	45.00	100	80-120	
4-Nitrophenol	44.48	Ŋ	45.00	98.8	80-120	
Diethyl Phthalate	51.11	Ħ	45.00	114	80-120	
Fluorene	42.62	41	42.00	101	80-120	
4-Chlorophenyl Phenyl Ether	51.68	11	45.00	115	80-120	
4-Nitroaniline	34.42	H	42.00	82.0	80-120	
4,6-Dinitro-2-methylphenol	43.33	19	45.00	96.3	80-120	
N-Nitrosodiphenylamine	40.31	31	45.00	89.6	80-120	
Azobenzene	38.55	11	42.00	91.8	80-120	
4-Bromophenyl Phenyl Ether	53.58	ty.	45.00	119	80-120	
Hexachlorobenzene	59.79	P	45.00	133	80-120	QS-0.
Pentachlorophenol	57.01	H	45.00	127	80-120	QS-0
Phenanthrene	41.37	II.	42.00	98.5	80-120	
Anthracene	39.42	ü	42.00	93.9	80-120	
Di-n-butyl Phthalate	42.40	Ħ	45.00	94.2	80-120	
Fluoranthene	45.69	Ħ	42.00	109	80-120	
Benzidine	75.33	n	90.00	83.7	80-120	
Pyrene	35.68	ij	42.00	85.0	80-120	
Butyl Benzyl Phthalate	35.94	Ħ	45.00	79.9	80-120	QR-0:
Benzo(a)anthracene	39.09	*1	42.00	93.1	80-120	
Chrysene	35.51	n	42.00	84.5	80-120	
Bis(2-Ethylhexyl) Phthalate	35.15	38	45.00	78.1	80-120	QR-0:
Di-n-octyl Phthalate	34.54	P	45.00	76.8	80-120	QR-0
Indeno(1,2,3-cd)Pyrene	47.52	11	42.00	113	80-120	
3,3 -Dichlorobenzidine	75.51	*3	90.00	83.9	80-120	
Benzo(b)Fluoranthene	38.13	18	42.00	90.8	80-120	
Benzo(k)Fluoranthene	41.36	R	42.00	98.5	80-120	
Benzo(a)Pyrene	40.76	n	42.00	97.0	80-120	
Dibenzo(a,h)anthracene	47.41	11	42.00	113	80-120	
Benzo(g,h,i)perylene	48.36	u	42.00	115	80-120	
Surrogate: 2-Fluorophenol	35.42	#	42.10	84.1	50-129	
Surrogate: Phenol-d6	40.35	H	42.40	95.2	50-132	
Surrogate: Nitrobenzene-d5	42.10	п	41.20	102	50-110	
Surrogate: 2-Fluorobiphenyl	41.38	"	41.70	99.2	50-112	

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Project: Jefferson Barracks ANG Project Number: DAHA-A0066-84322-OF

Spike

Level

Source

Result

%REC

11153 Aurora Avenue Des Moines IA, 50322

Analyte

Project Manager: Adam Newman

Reported: 12/20/05 14:49

Notes

RPD

Limit

%REC

Limits

RPD

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Units

Reporting

Limit

Result

ND

ND ND

ND

ND

ND

ND

ND

0.33

0.33

0.33

0.33

0.33

1.65

0.33

1.65

Calibration Check (15L0105-CCV1)				Prepared & An	alyzed: 11/30/	05	
Surrogate: 2,4,6-Tribromophenol	66.13		mg/kg wet	41.80	158	54-140	S-0:
Surrogate: Terphenyl-dl4	41.80		"	41.30	101	50-124	
Batch 1K53018 - 3545 BNA PFE				,			
Blank (1K53018-BLK1)				Prepared & An	alyzed: 11/30/	05	
N-Nitrosodimethylamine	ND	0.33	mg/kg wet				
Phenol	ND	0.33	11				
Aniline	ND	0.33	**				
Bis(2-Chloroethyl) Ether	ND	0.33	В				
2-Chlorophenol	ND	0.33	16				
1,3-Dichlorobenzene	ND	0.33	11				
1,4-Dichlorobenzene	ND	0.33	н				
Benzyl Alcohol	ND	0.33	u				
1,2-Dichlorobenzene	ND	0.33	ū				
2-Methylphenol	ND	0.33	11				
Bis(2-Chloroisopropyl) Ether	ND	0.33	U				
n-Nitroso-di-n-propylamine	ND	0.33	н				
(3 & 4)-Methylphenol	ND	0.33	#				
Hexachloroethane	ND	0.33	н				
Nitrobenzene	ND	0.33	Ħ				
Isophorone	ND	0.33	H				
2-Nitrophenol	ND	0.33	†I				
2,4-Dimethylphenol	ND	0.33	#I				
Bis(2-Chloroethoxy) Methane	ND	0.33	11				
2,4-Dichlorophenol	ND	0.33	41				
1,2,4-Trichlorobenzene	ND	0.33	11				
Naphthalene	ND	0.33	**				
4-Chloroaniline	ND	0.33	tŧ				

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Deffy

Hexachlorobutadiene

2-Methylnaphthalene

2,4,6-Trichlorophenol

2,4,5-Trichlorophenol 2-Chloronaphthalene

2-Nitroaniline

4-Chloro-3-methylphenol

Hexachlorocyclopentadiene

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Project Manager: Adam Newman

Keystone Laboratories, Inc. - Newton

				*******			*******		
	Reporting		Spike	Source		%REC		RPD	
Analyte Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1K53018 - 3545 BNA PFE

Blank (1K53018-BLK1)	Prepared & Analyzed: 11/30/05								
Dimethylphthalate	ND	0.33 mg/kg wet							
Acenaphthylene	ND	0.33 "							
2,6-Dinitrotoluene	ND	0.33							
3-Nitroaniline	ND	1.65 "							
Acenaphthene	ND	0.33 "							
2,4-Dinitrophenol	ND	1.65							
Dibenzofuran	ND	0.33							
2,4-Dinitrotoluene	ND	0.33							
4-Nitrophenol	ND	0.66							
Diethyl Phthalate	ND	0.33							
Fluorene	ND	0.33							
4-Chlorophenyl Phenyl Ether	ND	0.33							
4-Nitroaniline	ND	0.66 "							
4,6-Dinitro-2-methylphenol	ND	1.65 "							
N-Nitrosodiphenylamine	ND	0.33							
Azobenzene	ND	0.33 "							
4-Bromophenyl Phenyl Ether	ND	0.33							
Hexachlorobenzene	ND	0.33 "							
Pentachlorophenol	ND	0.66							
Phenanthrene	ND	0.33							
Anthracene	ND	0.33							
Di-n-butyl Phthalate	ND	0.33							
Fluoranthene	ND	0.33 "							
Benzidine	ND	0.33							
Pyrene	ND	0.33							
Butyl Benzyl Phthalate	ND	0.33							
Benzo(a)anthracene	ND	0.33 "							
Chrysene	ND	0.33							
Bis(2-Ethylhexyl) Phthalate	ND	0.33							
Di-n-octyl Phthalate	ND	0.33 "							
Indeno(1,2,3-cd)Pyrene	ND	0.33 "							
3,3'-Dichlorobenzidine	ND	0.66 "							
Benzo(b)Fluoranthene	ND	0.33 "							
Benzo(k)Fluoranthene	ND	0.33 "							
Benzo(a)Pyrene	ND	0.33							
Dibenzo(a,h)anthracene	ND	0.33							

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
Ratch 1K53018 - 3545 RNA PFE	· · · · · · · · · · · · · · · · · · ·									

Blank (1K53018-BLK1)			Prepared & Ai	nalyzed: 11/30/0	5	
Benzo(g,h,i)perylene	ND	0.33 mg/kg we	t		•	
Surrogate: 2-Fluorophenol	1.646	н	3.000	54.9	50-129	
Surrogate: Phenol-d6	2.938	н	3.050	96.3	50-132	
Surrogate: Nitrobenzene-d5	2.527	n	3.000	84.2	50-110	
Surrogate: 2-Fluorobiphenyl	3.770	n	3.050	124	50-112	S-B)
Surrogate: 2,4,6-Tribromophenol	5.838	"	3.050	191	54-140	S-0:
Surrogate: Terphenyl-dl4	2.958	**	3.017	98.0	50-124	
LCS (1K53018-BS1)				0/05 Analyzed:	12/01/05	
Phenol	1.271	0.33 mg/kg we	t 1.900	66.9	50-127	
2-Chlorophenol	1.759	0.33 "	2.073	84.9	50-110	
1,3-Dichlorobenzene	2.226	0.33	2.873	77.5	60-140	
1,4-Dichlorobenzene	2.269	0.33	2.357	96.3	50-110	
1,2-Dichlorobenzene	2.250	0.33 "	2.907	77.4	60-140	
2-Methylphenol	1.412	0.33	1.693	83.4	63-136	
n-Nitroso-di-n-propylamine	2.220	0.33	2.513	88.3	50-119	
(3 & 4)-Methylphenol	1.474	0.33 "	2.040	72.3.	50-110	
Hexachloroethane	2.059	0.33 "	2.400	85.8	50-130	
Nitrobenzene	2.274	0.33 "	2.683	84.8	50-113	
2-Nitrophenol	1.423	0.33 "	1.867	76.2	50-125	
2,4-Dimethylphenol	1.814	0.33	2.027	89.5	60-140	
2,4-Dichlorophenol	1.903	0.33	2.260	84.2	60-140	
1,2,4-Trichlorobenzene	3.013	0.33 "	3.120	96.6	73-114	
Naphthalene	2.552	0.33 "	2.457	104	60-140	
Hexachlorobutadiene	3.165	0.33 ^H	2.783	114	60-140	
4-Chloro-3-methylphenol	1.747	0.33	1.980	88.2	58-122	
2,4,6-Trichlorophenol	2.660	0.33 "	2.787	95.4	79-125	
2,4,5-Trichlorophenol	1.906	1.65 "	2.000	95.3	60-140	
Dimethylphthalate	3.432	0.33 "	2.923	117	61-110	QS-01
Acenaphthylene	1.914	0.33 "	2.273	84.2	63-133	
2,6-Dinitrotoluene	2.282	0.33 "	2.437	93.6	50-121	
Acenaphthene	3.641	0.33 "	3.167	115	60-140	
2,4-Dinitrophenol	0.970	1.65 "	1.609	60.3	60-140	
2,4-Dinitrotoluene	2.944	0.33	2.570	115	60-140	
4-Nitrophenol	2.319	0.66	2.507	92.5	53-140	
Diethyl Phthalate	2.961	0.33	2.660	111	62-113	
Fluorene	2.494	0.33 "	2.357	106	50-138	

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K53018 - 3545 BNA PFE										
LCS (1K53018-BS1)			· · · · · · · · · · · · · · · · · · ·	Prepared:	11/30/05	Analyzed	1: 12/01/05			
4,6-Dinitro-2-methylphenol	1.248	1.65	mg/kg wet	1.787		69.8	51-138			·····
Hexachlorobenzene	3.463	0.33	ff	2.400		144	60-140			QS-01
Pentachlorophenol	2.223	0.66	¥F	2.153		103	58-139			
Phenanthrene	2.567	0.33	It	2,437		105	71-112			
Anthracene	2.418	0.33	If	2.313		105	50-110			
Di-n-butyl Phthalate	3.420	0.33	11	2.680		128	50-139			
Fluoranthene	5,306	0.33	н	5.067		105	57-118			
Pyrene	2.911	0.33	11	3.323		87.6	50-110			
Butyl Benzyl Phthalate	1.949	0.33	H	2.790		69.9	60-140			
Chrysene	1.872	0.33	11	2.727		68.6	50-137			
Bis(2-Ethylhexyl) Phthalate	2.263	0.33	п	2,923		77.4	60-140			
Benzo(b)Fluoranthene	3.260	0.33	e	2.423		135	60-140			
Benzo(k)Fluoranthene	3.322	0.33	н	2.323		143	60-140			QS-01
Benzo(a)Pyrene	3.066	0.33	ft	2.457		125	50-137			,
Surrogate: 2-Fluorophenol	2.255		"	3.000		75.2	50-129			
Surrogate: Phenol-d6	2.822		n	3.050		92.5	50-132			
Surrogate: Nitrobenzene-d5	2.668		"	3.000		88.9	50-110			
Surrogate: 2-Fluorobiphenyl	3.384		#	3.050		III	50-112			
Surrogate: 2,4,6-Tribromophenol	6.393		#	3.050		210	54-140			S-07
Surrogate: Terphenyl-dl4	2.845		H	3.017		94.3	50-124			
Matrix Spike (1K53018-MS1)	So	urce: 15K11	39-06	Prepared:	11/30/05	Analyzed	: 12/01/05			
Phenol	1.552	0.33	mg/kg dry	2.384	ND	65.1	50-127			
2-Chlorophenol	1.990	0.33	, , , , , , , , , , , , , , , , , , ,	2.601	ND	76.5	50-110			
1,3-Dichlorobenzene	1.930	0.33	H	3.605	ND	53.5	60-140			QM-07
1.4-Dichlorobenzene	1.927	0.33	ft	2.957	ND	65.2	50-121			
1,2-Dichlorobenzene	2,056	0.33	a	3.647	ND	56.4	60-140			QM-07
2-Methylphenol	1.354	0.33	H	2.125	ND	63.7	63-136			
n-Nitroso-di-n-propylamine	2.002	0.33	11	3.153	ND	63.5	50-139			
(3 & 4)-Methylphenol	1.368	0.33	0	2.560	ND	53.4	50-110			
Hexachloroethane	1.681	0.33	z).	3.011	ND	55.8	50-130			
Nitrobenzene	2.102	0.33	н	3.367	ND	62.4	50-132			
2-Nitrophenol	1.429	0.33	**	2.342	ND	61.0	50-125			
2,4-Dimethylphenol	0.820	0.33	49	2.543	ND	32.2	60-140			QM-07
2,4-Dichlorophenol	1.489	0.33	tf	2.836	ND	52.5	60-140			QM-07
1.2.4-Trichlorobenzene	2.860	0.33	+1	3.915	ND	73.1	54-115			-
Naphthalene	2.233	0.33	н	3.082	ND	72.5	60-140			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

		Reporting		Spike	Source		%REC		RPD	
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes
						************		***************************************		

Batch 1K530	18 -	3545	RNA	PFE
-------------	------	------	-----	-----

Matrix Spike (1K53018-MS1)	Sour	ce: 15K113	39-06	Prepared:	11/30/05	Analyzed	d: 12/01/05	
Hexachlorobutadiene	2.518	0.33	mg/kg dry	3.492	ND	72.I	60-140	
4-Chloro-3-methylphenol	1.591	0.33	11	2.484	ND	64.0	58-122	
2,4,6-Trichlorophenol	2.284	0.33	R	3.496	ND	65.3	76-131	QM-07
2,4,5-Trichforophenol	1.472	1.65	Ħ	2.509	ND	58.7	60-140	QM-07
Dimethylphthalate	2.721	0.33	11	3.668	ND	74.2	63-128	
Acenaphthylene	1.759	0.33	11	2.852	ND	61.7	63-133	QM-07
2,6-Dinitrotoluene	2.251	0.33	**	3.057	ND	73.6	59-117	
Acenaphthene	3.203	0.33	**	3.973	ND	80.6	60-140	
2,4-Dinitrophenol	1.795	1.65	Ħ	2.019	ND	88.9	60-140	
2,4-Dinitrotoluene	3.131	0.33	Ħ	3.225	ND	97.1	60-140	
4-Nitrophenol	3.009	0.66	#1	3.145	ND	95.7	53-140	
Diethyl Phthalate	2.587	0.33	11	3.338	ND	77.5	54-140	
Fluorene	2.668	0.33	a.	2.957	ND	90.2	50-124	
4,6-Dinitro-2-methylphenol	1.918	1.65	11	2.242	ND	85.5	51-138	
Hexachlorobenzene	3.403	0.33	17	3.011	ND	113	60-140	
Pentachlorophenol	2.222	0.66	н	2.702	ND	82.2	58-139	
Phenanthrene	2.591	0.33	17	3.057	ND	84.8	65-138	
Anthracene	2.304	0.33	Ħ	2.903	ND	79.4	50-136	
Di-n-butyl Phthalate	2.555	0.33	ŧi.	3.363	ND	76.0	50-139	
Fluoranthene	5.431	0.33	11	6.357	ND	85.4	50-118	
Pyrene	2.745	0.33	łτ	4.170	ND	65.8	50-124	
Butyl Benzyl Phthalate	1.950	0.33	Ħ	3.501	ND	\$5.7	60-140	QM-07
Chrysene	1.709	0.33	Ħ	3.421	ND	50.0	50-137	
Bis(2-Ethylhexyl) Phthalate	2.180	0.33	*I	3.668	ND	59.4	60-140	QM-07
Benzo(b)Fluoranthene	2.539	0.33	н	3.041	ND	83.5	60-140	
Benzo(k)Fluoranthene	1.923	0.33	n	2.915	ND	66.0	60-140	
Benzo(a)Pyrene	2.128	0.33	P	3.082	ND	69.0	50-137	
Surrogate: 2-Fluorophenol	2.218		ff	3.764		58.9	50-129	
Surrogate: Phenol-d6	3.448		re	3.827		90.1	50-132	
Surrogate: Nitrobenzene-d5	2.884		"	3.764		76.6	50-110	
Surrogate: 2-Fluorobiphenyl	3.780		"	3.827		98.8	50-112	
Surrogate: 2,4,6-Tribromophenol	6.620		"	3.827		173	54-140	S-07
Surrogate: Terphenyl-dl4	3.383		и	3.785		89.4	50-124	

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11153 Aurora Avenue Des Moines IA, 50322

Analyte

2,4,6-Trichlorophenol

2,4,5-Trichlorophenol

Dimethylphthalate

2,6-Dinitrotoluene

2,4-Dinitrophenol

2,4-Dinitrotoluene

Diethyl Phthalate

Hexachlorobenzene

Pentachlorophenol

Di-n-butyl Phthalate

Phenanthrene

Fluoranthene

Pyrene

Anthracene

4.6-Dinitro-2-methylphenol

Acenaphthylene

Acenaphthene

4-Nitrophenol

Fluorene

Project: Jefferson Barracks ANG

Spike

Level

3.493

2.507

3.664

2.850

3.054

3.969

2.017

3.221

3.142

3.334

2.954

2.240

3.008

2.699

3.054

2.900

3.359

6.351

4.166

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

ND

Source

Result

%REC

%REC

Limits

76-131

60-140

63-128

63-133

59-117

60-140

60-140

60-140

53-140

54-140

50-124

51-138

60-140

58-139

65-138

50-136

50-139

50-118

50-124

7.62

16.1

2.43

1.86

0.929

6.31

0.00

4.17

8.22

2.93

9.17

5.67

6.34

9.39

7.36

3.26

6.17

4.40

0.292

Fax 641-792-7989

70.6

69.0

76.1

62.9

74.4

75.8

89.0

93.2

104

79.9

82.4

90.6

106

90.4

78.8

76.9

71.5

81.8

65.7

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

RPD

Limit

15

40

24

26

28

10.1

40

40

20

28

30

22

40

30

22

30

22

24

30

QM-07

QM-07

Notes

RPD

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Units

Reporting

Limit

0.33

1.65

0.33

0.33

0.33

0.33

1.65

0.33

0.66

0.33

0.33

1.65

0.33

0.66

0.33

0.33

0.33

0.33

0.33

15

Result

2.465

1.729

2.788

1.792

2.272

3.007

1.795

3.003

3.267

2.664 2.434

2.030

3.194

2.441

2.407

2.230

2.402

5.197

2.737

Matrix Spike Dup (1K53018-MSD1)	Sour	ce: 15K11	139-06	Prepared:	11/30/05	Analyze	d: 12/01/05			
Phenol	1.587	0.33	mg/kg dry	2.382	ND	66.6	50-127	2.23	20	
2-Chlorophenol	2.014	0.33	**	2.599	ND	77.5	50-110	1.20	24	
1,3-Dichlorobenzene	2.074	0.33	Ħ	3.602	ND	57.6	60-140	7.19	40	QM-07
1,4-Dichlorobenzene	1.999	0.33	11	2.954	ND	67.7	50-121	3.67	16	
1,2-Dichlorobenzene	2.209	0.33	t#	3.643	ND	60.6	60-140	7.17	40	
2-Methylphenol	1.299	0.33	*1	2.123	ND	61.2	63-136	4.15	22	QM-07
n-Nitroso-di-n-propylamine	2.406	0.33	ii	3.150	ND	76.4	50-139	18.3	17	QM-07
(3 & 4)-Methylphenol	1.596	0.33	17	2.557	ND	62.4	50-110	15.4	29	
Hexachloroethane	1.723	0.33	Ħ	3.008	ND	57.3	50-130	2.47	20	
Nitrobenzene	2.140	0.33	¥	3.363	ND	63.6	50-132	1.79	19	
2-Nitrophenol	1.429	0.33	a	2.340	ND	61.1	50-125	0.00	24	
2,4-Dimethylphenol	0.654	0.33	н	2.540	ND	25.7	60-140	22.5	40	QM-07
2,4-Dichlorophenol	1.727	0.33	11	2.833	ND	61.0	60-140	14.8	40	
1,2,4-Trichlorobenzene	2.864	0.33	**	3.911	ND	73.2	54-115	0.140	20	
Naphthalene	2.501	0.33	n	3.079	ND	81.2	60-140	11.3	40	
Hexachlorobutadiene	2.605	0.33	tt	3.489	ND	74.7	60-140	3.40	40	
4-Chloro-3-methylphenol	1.624	0.33	14	2.482	ND	65.4	58-122	2.05	24	

Keystone La	iboratories, Ir	nc Newton
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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Deffy King





11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit		Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K53018 - 3545 BNA PFE							<u> </u>			
Matrix Spike Dup (1K53018-MSD1)	So	urce: 15K11	39-06	Prepared:	11/30/05	Analyzed	: 12/01/05			
Butyl Benzyl Phthalate	1.896	0.33	mg/kg dry	3.497	ND	54.2	60-140	2.81	40	QM-0
Chrysene	1.900	0.33	r	3.418	ND	55.6	50-137	10.6	30	
Bis(2-Ethylhexyl) Phthalate	2.155	0.33	11	3.664	ND	58.8	60-140	1.15	40	QM-0*
Benzo(b)Fluoranthene	2.356	0.33	ł1	3.038	ND	77.6	60-140	7.48	4()	
Benzo(k)Fluoranthene	1.835	0.33	ŧŧ	2.912	ND	63.0	60-140	4.68	40	
Benzo(a)Pyrene	1.948	0.33	Ð	3.079	ND	63.3	50-137	8.83	30	
Surrogate: 2-Fluorophenol	1.889	-	"	3.760		50.2	50-129			
Surrogate: Phenol-d6	3.278		n	3.823		<i>85.7</i>	50-132			
Surrogate: Nitrobenzene-d5	3.132		n	3.760		83.3	50-110			
Surrogate: 2-Fluorobiphenyl	3.960		11	3.823		104	50-112			
Surrogate: 2,4,6-Tribromophenol	6.144		**	3.823		161	54-140			S-0
Surrogate: Terphenyl-dl4	3.648		"	3.781		96.5	50-124			
Reference (1K53018-SRM1)				Prepared:	11/30/05	Analyzed	: 12/01/05			
Phenol	1.767	0.33	mg/kg wet	1.900		93.0	70-130			
2-Chlorophenol	2.477	0.33	н	2.073		119	70-130			
3-Dichlorobenzene	2.638	0.33	Ħ	2.873		91.8	70-130			
,4-Dichlorobenzene	2.235	0.33	я	2.357		94.8	70-130			
1,2-Dichlorobenzene	4.942	0.33	11	2.907		170	70-130			QR-05
2-Methylphenol	1.979	0.33	R	1.693		117	70-130			
n-Nitroso-di-n-propylamine	3.599	0.33	Ð	2.513		143	70-130			QS-02
3 & 4)-Methylphenol	1.779	0.33	18	2.040		87.2	70-130			
Hexachloroethane	2.653	0.33	n	2.400		111	70-130			
Nitrobenzene	3.408	0.33	U	2.683		127	70-130			
2-Nitrophenol	1.783	0.33	n	1.867		95.5	70-130			
2,4-Dimethylphenol	2.446	0.33	Iş	2.027		121	70-130			
2,4-Dichlorophenol	2.959	0.33	H	2.260		131	70-130			QS-02
1.2.4-Trichlorobenzene	4.092	0.33	11	3.120		131	70-130			QR-05
Naphthalene	2.644	0.33	18	2.457		108	70-130			
Hexachlorobutadiene	3.862	0.33	Ħ	2.783		139	70-130			QR-05
4-Chloro-3-methylphenol	2.138	0.33	#	1.980		108	70-130			
2.4,6-Trichlorophenol	3.095	0.33	n	2.787		111	70-130			
2,4,5-Trichlorophenol	2.186	1.65	(t	2.000		109	70-130			
Dimethylphthalate	3.249	0.33	84	2.923		111	70-130			
Acenaphthylene	2.002	0.33	iŧ	2.273		88.1	70-130			
2.6-Dinitrotoluene	2.716	0.33	11	2.437		111	70-130			
Acenaphthene	3.694	0.33	3e	3.167		117	70-130			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF Project Manager: Adam Newman

Reported: 12/20/05 14:49

Determination of Base/Neutral/Acid Extractable Compounds - Quality Control

Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1K53018 - 3545 BNA PFE										
Reference (1K53018-SRM1)				Prepared:	11/30/05	Analyzed	1: 12/01/05			
2,4-Dinitrophenol	2,157	1.65	mg/kg wet	1.610		134	70-130			QR-05
2,4-Dinitrotoluene	3.469	0.33	11	2.570		135	70-130			QR-05
4-Nitrophenol	2.812	0.66	44	2.507		112	70-130			
Diethyl Phthalate	3.179	0.33	**	2.660		120	70-130			
Fluorene	2.796	0.33	ŧŧ	2.357		119	70-130			
4,6-Dinitro-2-methylphenol	2.031	1.65	н	1.787		114	70-130			
Hexachlorobenzene	3.533	0.33	#	2.400		147	70-130			QR-05
Pentachlorophenol	3.043	0.66	н	2.153		141	70-130			QR-05
Phenanthrene	2.720	0.33	н	2.437		112	70-130			
Anthracene	2.457	0.33	Ħ	2.313		106	70-130			
Di-n-butyl Phthalate	2.574	0.33	ft	2.680		96.0	70-130			
Fluoranthene	5.101	0.33	U	5.067		101	70-130			
Pyrene	2.764	0.33	17	3.323		83.2	70-130			
Butyl Benzyl Phthalate	2.294	0.33	9	2.790		82.2	70-130			
Chrysene	2.086	0.33	t†	2.727		76.5	70-130			
Bis(2-Ethylhexyl) Phthalate	2.590	0.33	**	2.923		88.6	70-130			
Benzo(b)Fluoranthene	2.635	0.33	j¢ .	2.423		109	70-130			
Benzo(k)Fluoranthene	2.735	0.33	Ħ	2.323		118	70-130			
Benzo(a)Pyrene	2.485	0.33	H	2.457		101	70-130			
Surrogate: 2-Fluorophenol	3.965		It	3.000		132	70-130			S-07
Surrogate: Phenol-d6	4.683		#	3.050		154	70-130			S-07
Surrogate: Nitrobenzene-d5	3.489		#	3.000		116	70-130			
Surrogate: 2-Fluorobiphenyl	3.172		7)	3.050		104	70-130			
Surrogate: 2,4,6-Tribromophenol	6.394		н	3.050		210	70-130			S-07
Surrogate: Terphenyl-dl4	3.402		"	3.017		113	70-130			

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11153 Aurora Avenue Des Moines IA, 50322 Project: Jefferson Barracks ANG

Project Number: DAHA-A0066-84322-OF

Project Manager: Adam Newman

Reported: 12/20/05 14:49

Determination of Physical/Conventional Chemistry Parameters - Quality Control

Keystone Laboratories, Inc. - Newton

			•							
		Reporting		Spike	Source		%REC		RPD	Į
Analyte	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

Batch 1L50101 - Wet Chem Preparation

 Duplicate (1L50101-DUP1)
 Source: 15K1139-06
 Prepared & Analyzed: 11/30/05

 % Solids
 79.2
 0.1
 %
 79.7
 0.629
 20

Keystone Laboratories, Inc. - Newton

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Montgomery Watson Harza-IAProject: Jefferson Barracks ANG11153 Aurora AvenueProject Number: DAHA-A0066-84322-OFReported:Des Moines IA, 50322Project Manager: Adam Newman12/20/05 14:49

Notes and Definitions

S-BN	Base/Neutral surrogate recovery outside of control limits. The data was accepted based on valid recovery of remaining two base/neutral surrogates.
S-07	The surrogate recovery for this sample is outside of established control limits
S-07	The surrogate recovery for this sample is outside of established control limits.
QS-02	The spike recovery for this QC sample exceeded established acceptance limits. However, all samples were below the reporting and/or regulatory limit so the data is acceptable.
QS-01	The blank spike recovery was outside acceptance limits. Batch accepted based on acceptable MS/MSD/RPD results.
QR-06	The reference standard was outside of established control limits.
QR-05	The reference standard was outside of established control limits. The batch was accepted based on acceptable LCS, MS/MSD and RPD results.
QM-07	The spike recovery and/or RPD was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Keystone Laboratories, Inc. - Newton

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Jeffrey King, Ph.D., Laboratory Director

O D CORD



600 E. 17th St. S. Newton, IA 50208

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3012 Ansborough Ave. Waterloo, IA 50701 Phone: 319-235-4440

Kansas City, KS 66103 Phone: 913-321-7856 Fax: 913-321-7937

PAGE OF

Fax: 641-792-7989

Fax: 319-235-2480 www.keystonelabs.com

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				IAIN		OSIT	823	2					15K113	39
CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO, OF CONT.	MATRIX	GRAB/COMPOSITE	Svocs (8	匠用口					SAMPLE TEMPERATURE UPON RECEIPT:	LABORATORY SAMPLE NUMBER
- 1	11-29-05		Exception A	1	soil		_	X	4				SAMPLE CONDITION/COMMENTS	01
ExA-SW-East-9'	11-19-05	9.45	Execusion A	Ì	Soi		************	X						02
E.A-SW-West-9'	11-29-05	9:50	Ecaustion A	1	Soil			X			**************************************	on the same of the same of the same of the same of the same of the same of the same of the same of the same of		03
EA-SW-Suth-9'	11-29-05	10:00			Soil		******	X						04
EXAFL-12'	109-05	10:05			501/	-	,	X	·					05
Ex B1-SW-Noth-3'	1-1905	055	Excavation B1	1	501		X	1						06
Ex. B.1 - SW-East-3'	11-29-05	b145	Excustin B1.	2	501		X							07
ECBL-SW-Web-3'	1-29-05	b:40	Excustion B1		soil		X	-			and Constitution of the Co	SACH DIA CONTRACT		08
	11-29-05)):∞	Execution B1	i	soil		X	_			M. ACCORDING TO SERVICE AND ADDRESS OF THE PARTY OF THE P	tage on .		09
E81-FL-6'	11-2900	10,50	Example 81		Soil		X	-			cofficial available			10

Relinquished by: (Signature)	Date / 1/2	Received by: (Signature)	Date	Turn-Around:	₩	R. 4PM 1 / law
al Dor	Time 28 25		Time	Standard	Rush _	Contact Lab Prior to Submission
Relinquished by: (Signature)	Date	Received for Lab by: (Signature)	Date //- 3)-05	Remarks:		
	Time	NSO	Time 8:05			

OF CUSTODY RECORD

Meystone LABORATORIES, INC.

☑ 600 E. 17th St. S. Newton, IA 50208

Phone: 641-792-8451 Fax: 641-792-7989 3012 Ansborough Ave. Waterloo, IA 50701

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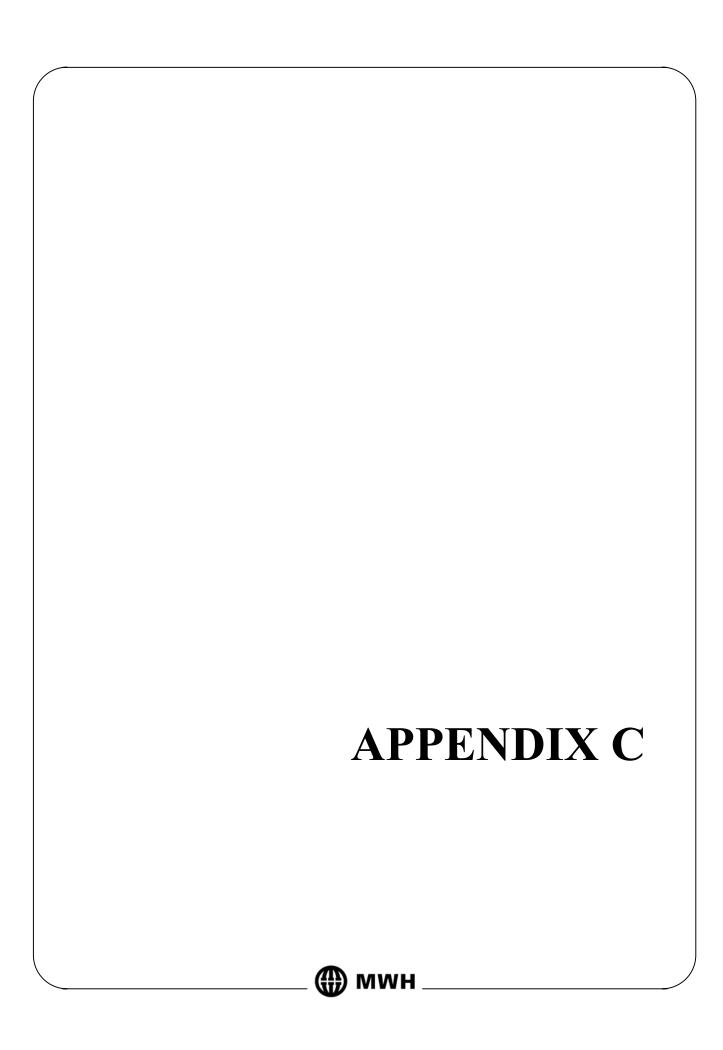
www.keystonelabs.com

Kansas City, KS 66103 Phone: 913-321-7856

Fax: 913-321-7937

PAGE 2 OF 2

PRINT OR TYPE INFORMATION E SAMPLER: Adam R SITE NAME: TBAN ADDRESS: Kearney CITY/ST/ZIP: St. Lou PHONE: 575	2	REPORT TO: NAME: Adam Newman COMPANY NAME: MWH America, Inc. ADDRESS: 1153 Awara Avenue CITY/ST/ZIP: Des Manes TA 50322-7804 PHONE: 515-253-0830 FAX: 515-253-9592 ANALYSES REC							BILL TO: NAME: Adam Newman COMPANY NAME: MWH Americas, Inc ADDRESS: 1153 Aurora Avenue CITY/ST/ZIP: Des Mones IA 50322-7904 PHONE: 575-253-0830 Keystone Quote No.: Jefferson Barracks (If Applicable)								
CLIENT SAMPLE NUMBER	DATE	TIME	SAMPL	E LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	50c (822C)	TEH (Town OA)	ALYSE	:S HE	JOIH	ED		LABORATORY WO	SK 1/3 ATURE °C).
			Excavolton		1	S ₀ ;]	Grab	X				/					
	11-29-05	- A	Execution		Ì	Si:/	<u>G</u>	$\langle \rangle$			٠,	4_					
	11-29-05		Excavation	82	1_	Soil	G-	X,			₩ <u></u>	-	-				43
Ex B2-5W-5wth-3			Excustion			S:1	C	X	,		7	ļ					19
ELD-FL-6'	12905	12:50	Eccavation	82		So:/	6	X			4	ļ					
	11-29-03	\ \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	Duplicate	······································	Ì	Soil	6-	***	X	/		ļ					16
Dupa	1-29-05	-174/Personal property and the con-	lighterte	***************************************	1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	6	X		$\bot \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \! \!$							
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	Se Carlo Car	<u> </u>										<u> </u>					
Relinquished by: (Signature	293 Receiv	ed by: (Signature)		Date Time					Around Stand	andard Rush By 4PM 12/1/05 Contact Lab Prior to Submission							
Relinquished by: (Signature		elved for Lab by: (Signature) Date						rks:									
	***************************************	Time	Origina	Time 8'05						Pink - !	Sample	r Con					FORM: CCR 7-97



APPENDIX C

PHOTOGRAPHIC RECORDS

PHOTOGRAPHIC RECORD

Photo No.: 1

Photographer:

Adam Newman - MWH

Date:

10-20-2005

Direction:

North-Northeast

Description:

Boring location SB-9 near proposed Excavation A prior to removal action.



Photo No.: 2

Photographer:

Adam Newman - MWH

Date:

10-20-2005

Direction:

East-Southeast

Description:

Boring locations SB-10 to SB-16 at proposed Excavation B prior to removal action.





Missouri Air National Guard ERP Site No. 2, 157th Air Operations Group Jefferson Barracks Air National Guard Station St. Louis, Missouri Project No.: 2090955

PHOTOGRAPHIC RECORD

Photo No.: 3

Photographer:

Adam Newman - MWH

Date:

11-29-2005

Direction:

North-Northeast

Description:

Excavation A.



Photo No.: 4

Photographer:

Adam Newman - MWH

Date:

11-29-2005

Direction:

East-Southeast

Description:

Excavation B1 showing exposed electrical conduits adjacent and parallel to underground water line (not shown).





Missouri Air National Guard ERP Site No. 2, 157th Air Operations Group Jefferson Barracks Air National Guard Station St. Louis, Missouri Project No.: 2090955

PHOTOGRAPHIC RECORD

Photo No.: 5

Photographer:

Adam Newman -MWH

Date:

12-2-2005

Direction:

East

Description:

Excavation B2.



Photo No.: 6

Photographer:

Adam Newman - MWH

Date:

12-2-2005

Direction:

West

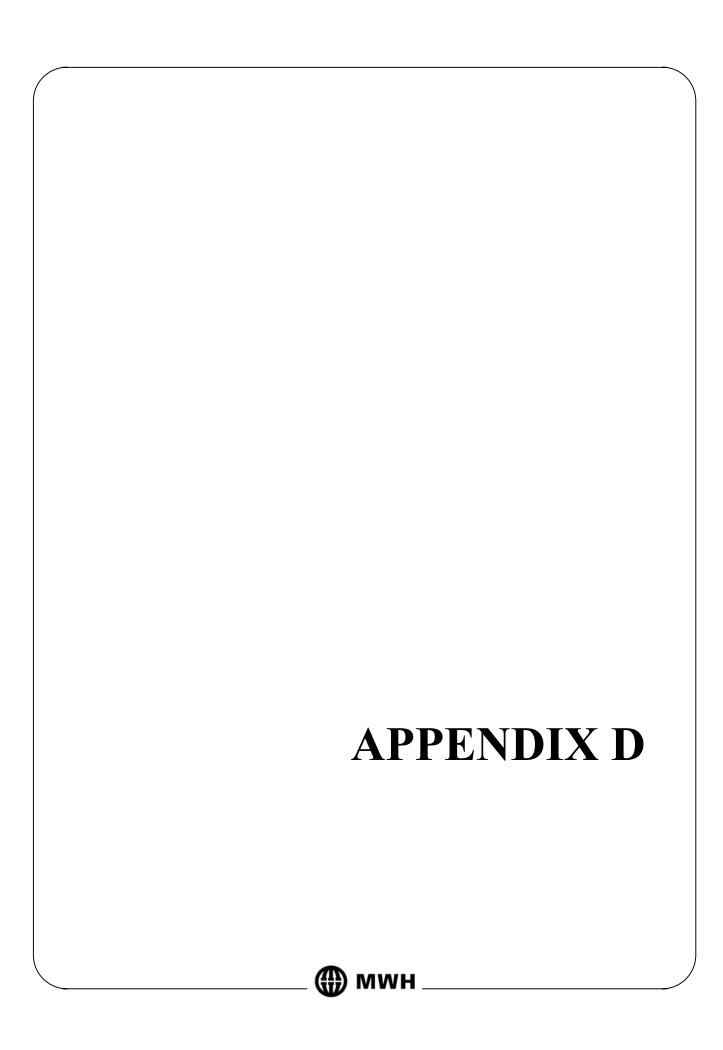
Description:

ERP Site No. 2 upon completion of removal action activities.





Missouri Air National Guard ERP Site No. 2, 157th Air Operations Group Jefferson Barracks Air National Guard Station St. Louis, Missouri Project No.: 2090955



APPENDIX D

DRILLING LOGS



Soil Boring SB-10

Page: 1 of 1

Surface E Top of Ca Screen: D Casing: D Drill Co. Driller Start Date Be	lev. NA sing NA biameter biameter Below G Mike Osco e 10/20/ ntonite Chi	NA NA round S dy Drille	Cks Air Nation Hole De Water L Length Length Surface ers License Bentonite G	epth _ evel Ir NA _ NA _ Drill Numb	Owner Missouri Air National Guard Project Number 2090955 8.0 ft Hole Diameter 2.0 in North NA initial VAA Static VAA East NA Type/Size NA Type NA ing Method Direct-Push er 03238PM Log By ARN Checked By JLC Completion Date 10/20/05 Well Permit # NA Description COMMENTS PID readings of screen samples escalated likely due to moisture
Depth (ff)	(mdd)	Sample ID % Recovery	Recovery Graphic	SOSN	(Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS.
- 0	-	B10 3- 4'		CL ML	Grass with gravel Fill Material - SILT loam with sand and gravel, brown, coarse sand, large to small angular gravel, trace small brick fragments, no odor. Silty CLAY, light brown, soft to stiff clay, moist at 8', no odor. End of soil boring
DRILLING LOGS SB9 TO SB16.GPJ MWH IA.GDT 1/5/06					End of soil boiling



Soil Boring SB-11

Page: 1 of 1

Surface E Top of Ca Screen: D Casing: D Drill Co. Driller	lev. National sing of the sing	son Be NA NA NA Groun cody C 0/05	arracks and Surfa	Air Nation Hole De Water L Length Length ace License	pth _e evel Ir 	Owner Missouri Air National Guard Project Number 2090955 2.0 ft Hole Diameter 2.0 in North NA Itial NA Static NA East NA Type/Size NA Type NA Ing Method Direct-Push Per 03238PM Log By ARN Checked By JLC Ompletion Date 10/20/05 Well Permit # NA Grout Portland Cement Sand Pack Sand Pack	COMMENTS PID readings of screen samples escalated likely due to moisture.
Depth (ff)	Old (mdd)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	SOSN	Description (Color, Moisture, Texture, Structure, O Geologic Descriptions are Based on the Ut	
- 0 -				XXXXX		Grass with gravel Fill Material - SILT loam with sand and gravel, brown, c	parse sand large to
	_					small angular gravel, trace small brick fragments, no oc	lor.
- 4		SB11 3- 4'			CL ML	Silty CLAY, light brown, soft to stiff clay, little moisture, odor. CLAY, light brown, stiff, high plasticity, some moisture,	
90/					СН	CLAY, light brown, stiff, high plasticity, some moisture,	no odor.
8 -	-					End of soil boring.	
DRILLING LOGS SB9 TO SB16.GPJ MWH IA.GDT 1/5/06							



Soil Boring SB-1

SB-12 Page: 1 of 1

Surface E Top of Ca Screen: D Casing: D Drill Co. Driller Start Date	ilev. Nasing Nas	Son Ba	arracks and Surfa	Air Nation Hole De Water L Length Length ace License	pth _ evel Ir NA _ NA _ Drill Numb	Owner Missouri Air National Guard Project Number 2090955 3.0 ft Hole Diameter 2.0 in North NA itital NA Static NA East NA Type/Size NA Type NA Ing Method Direct-Push or 03238PM Log By ARN Checked By JLC completion Date 10/20/05 Well Permit # NA Description (Color, Moisture, Texture, Structure, Odor)
- 0		SB12 3-4'	Blov Re	5	CL	Grass with gravel CLAY with sand and gravel, brown, coarse sand, large to small angular gravel, trace small coal fragments, dry, no odor. Silty CLAY, light brown, soft to stiff clay, little moisture, moderate plasticity, no
- 4	-				CL ML	odor. End of soil boring.
DRILLING LOGS SB9 TO SB16.GPJ MWH IA.GDT 1/5/06						



Soil Boring SB-13

Surface II Top of Ca Screen: I Casing: I Drill Co. Driller _/ Start Dat	Jefferson B Elev. NA asing NA Diameter NA Diameter NA Below Grou Mike Oscody e 10/20/05	A Le nd Surfaces Drillers Lic	ir National G ole Depth /ater Level Ir ength NA ength Drill cense Numb	Page: 1 of 1 COMMENTS PID readings of screen sample escalated likely due to moisture Page: 1 of 1 COMMENTS PID readings of screen sample escalated likely due to moisture Root
- 0 2 4 6 90/9/	SB13 3- 4'		CL ML	Grass with gravel Fill Material - CLAY loam, brown, coarse sand, large to small angular gravel, small roots, dry, no odor. Silty CLAY, light brown to brown, low plasticity, trace coarse sand and small angular gravel, dry, no odor. Silty CLAY, light brown, soft to stiff clay, little moisture, moderate plasticity, no odor.
DRILLING LOG BORING LOGS SB9 TO SB16.6PJ MWH IA.GDT 1/5/06				End of soil boring.



Soil Boring SB-14

Page: 1 of 1

W		F	roject	ERP S	— Site No	2 RA Owner Missouri Air National Guard COMMENTS
Location	Project Number 2090955					
Surface E				Hole De		
Top of Ca						nitial <u>∇</u> NA Static <u>▼</u> NA East NA
Screen: [_			Length		Type/Size NA
Casing: E				Length		Type NA
Drill Co.						ing Method Direct-Push
					-	er 03238PM Log By ARN Checked By JLC
Start Date			71111010	21001100		Completion Date 10/20/05 Well Permit # NA
			XXX D.	antanita C	_	Grout Rorell Portland Cement Sand Pack Sand Pack
	T T	ilihe 🏻	<u></u>	T T	Tanule:	SI GIOUL W POINTAIN CEITIEIL [] Saint Pack [
_	_	eny	ئے تا	O		Description
Depth (ft)	PID (ppm)	Sample ID % Recovery	Blow Count Recovery	Graphic Log	nscs	
	- 9	Sar % R	Boy	<u>Б</u> _		(Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS.
		Ŭ				Geologic Descriptions are based on the OSCS.
						Q
├ 0 -				XXXXX		Grass with gravel Fill Material - SILT loam with coarse sand and large to small angular gravel, no
						odor.
†	1					
-	_					
_ 2 -	0.0					
-						Silty CLAY, light brown, soft, low plasticity, some silty red mottling, dry, no odor.
<u> </u>	1					odor.
· -	-		Г		CL	
<u> </u>		SB14 3-			ML	
,	0.0	4'				
F 4 -						
	-					CLAY, light brown, soft to stiff, moderate plasticity, little moisture, no odor.
ļ .	_					, , , , , , , , , , , , , , , , , , , ,
	0.0					
- 6 -	0.0		_		CL	
ļ	4				CL	
L.						
90/6	-					
- 8 -	0.0				-	End of soil boring.
5.5						Life of soil borning.
- - -						
≦ - -	1					
5 -	_					
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12 -	1					
<u>}</u>	-					
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<u>₹</u>						



Soil Boring SB-

SB-15 Page: 1 of 1

Surface E Top of Ca Screen: D Casing: D Drill Co.	lev. <u>/</u> sing _ siamete iamete Below like Os	son Ba NA NA r <u>NA</u> r <u>NA</u> Groun	arracks	Air Nation Hole De Water Le Length Length	pth _ evel Ir <i>NA</i> <i>NA</i> Drill	. 2 RA Owner Missouri Air National Guard uard Station Project Number 2090955 8.0 ft Hole Diameter 2.0 in North NA ititial ☑NA Static ▼NA East NA Type/Size NA Type NA ing Method Direct-Push er 03238PM Log By ARN Checked By JLC Completion Date 10/20/05 Well Permit # NA
Depth (ft)	(mdd)	Sample ID di % Recovery	Blow Count Recovery	Graphic Log	s S S S S S	Portland Cement Sand Pack Sand Pack Description (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS.
- 0 - - 2 -	0.0					Grass with gravel FIII Material - Clayey SILT with sand and gravel, brown, large to small angular gravel, coarse sand, trace small brick fragments at 2.2', no odor.
	0.0	SB15 3- 4'			CL ML	SIIty CLAY with gravel; light brown; reddish silty mottling, large angular gravel at 3.5', 5' and 6'; trace small coal fragments; low to moderate plasticity, low moisture; no odor.
 - 8 - 	0.0				CL	Sllty CLAY, light brown, moderate plasticity, moist, no odor. End of soil boring.
- 10 - - 10 - 						
- 8 3 10 12						



Soil Boring SB-16

Page: 1 of 1

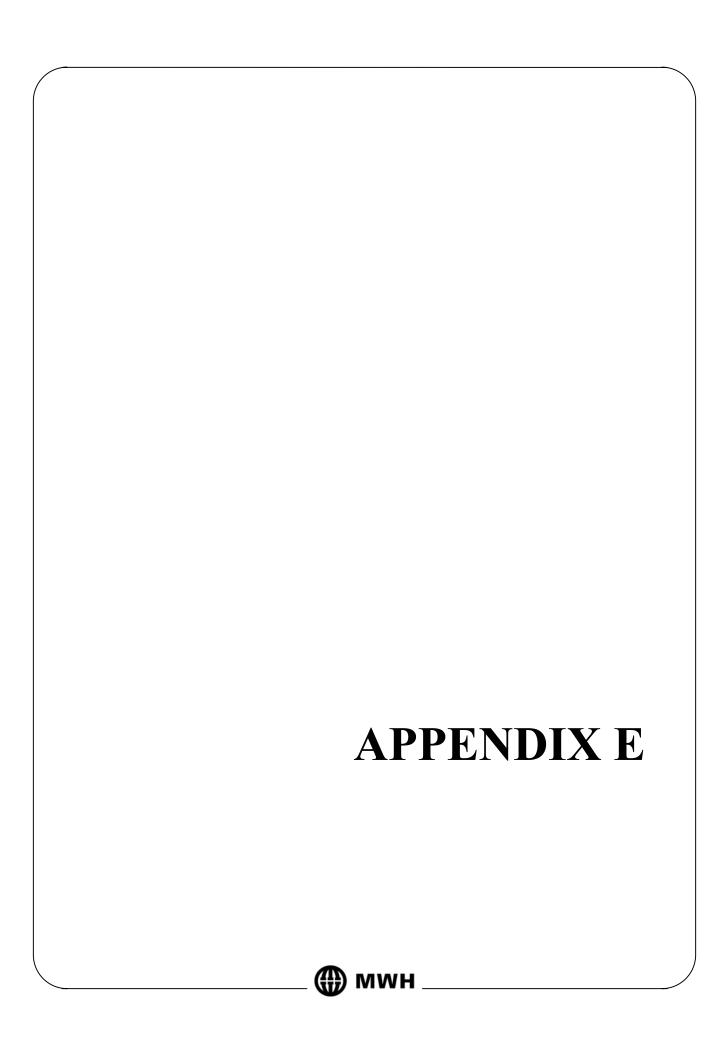
Surface E Top of Ca Screen: D Casing: D Drill Co. Driller Start Date Be	Elev. Nasing Islandeten Diameten Below Mike Ose 10/2	son Ba	arracks and Surfa Drillers I	Air Nation Hole De Water L Length Length ace License	evel Ir NA NA Drill Numb	Static ▼NA East NA Type/Size NA Type NA ing Method Direct-Push er 03238PM Log By ARN Checked By JLC Completion Date 10/20/05 Well Permit # NA B Grout Portland Cement Sand Pack Description
— Depth	idd)	Sample ID % Recovery	Blow Count Recovery	Grap)SN	(Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. Grass with gravel
2 -	0.0					FIII Material - Clayey SILT with sand and gravel, light brown, coarse sand, large to small angular gravel, trace small brick and coal fragments, dry, no odor. Silty CLAY light brown, stiff, some small roots, low to moderate placticity, little
	0.0	SB16 3- 4'			CL ML	Silty CLAY, light brown, stiff, some small roots, low to moderate plasticity, little moisture, no odor.
6 - 6 8 - 8	0.0					End of soil boring.
DRILLING LOG BORING LOGS SB9 TO SB16.GPJ MWH IA.GDT 1/5/06	- - - -					
12 - 12 - 12 - 12 - 12 - 12 - 12 - 12 -	- - -					



Soil Boring S

SB-9

Page: 1 of 1 COMMENTS Project ERP Site No. 2 RA Owner Missouri Air National Guard PID readings of screen samples Location Jefferson Barracks Air National Guard Station Project Number 2090955 escalated likely due to moisture. Surface Elev. NA Hole Depth 12.0 ft Hole Diameter 2.0 in North NA East NA Top of Casing NA Water Level Initial *∑NA* Static▼NA Screen: Diameter NA Length NA Type/Size NA Casing: Diameter NA Length NA Type NA Drilling Method <u>Direct-Push</u> Drill Co. Below Ground Surface Driller Mike Oscody Drillers License Number 03238PM Log By ARN Checked By JLC Start Date 10/20/05 Completion Date 10/20/05 Well Permit # NA Bentonite Chips Bentonite Granules Grout Portland Cement Sand Pack Sand Pack Description Graphic Log uscs PID (bpm) Depth (ft) (Color, Moisture, Texture, Structure, Odor) Geologic Descriptions are Based on the USCS. Grass with gravel 0 Fill Material - large angular GRAVEL with coarse to fine sand and silt, light brown, no odor. Silty CLAY with sand, dark brown, coarse sand, trace small brick fragments, soft clay with low plasticity, little moisture, no odor. 2 Silty CLAY, light brown, little coarse sand, trace small brick fragments, soft clay with low plasticity, little moisture, no odor. 6 6 CL ML Silty CLAY with gravel, dark brown, small angular gravel, soft clay with low plasticity, little moisture, no odor. CLAY, light brown-light grey, soft clay, trace fine sand, moderate plasticity, no CL SB9 6 Sandy Clay to Clayey SAND, light brown, soft clay, moist, no odor. BORING LOGS SB9 TO SB16.GPJ MWH IA.GDT 1/5/06 8 10 12 End of soil boring. DRILLING LOG



APPENDIX E DATA VALIDATION REPORTS

DATA VALIDATION REPORT

Missouri Air National Guard Jefferson Barracks ERP Site #2 October and November 2005

Nineteen soil and associated quality control (QC) samples were collected from the Missouri Air National Guard (MOANG) Base, Jefferson Barracks ERP Site #2, Jefferson Barracks, Missouri in October and November 2005. The samples were analyzed by Keystone Laboratories, Inc., Newton, Iowa for one or more of the following: semi-volatile organic compounds (SVOCs) by United States Environmental Protection Agency (USEPA) Method SW-846 8270C and total extractable hydrocarbons (TEH) by Iowa Method OA2/S-8015. The analytical data were reviewed based on the results of the data evaluation parameters and/or the QC sample results provided by the laboratory.

Sample Delivery Group (SDG) 15J0975

The matrix spike/matrix spike duplicate (MS/MSD) associated with the TEH analysis of sample Site 2-SB9 6-8' indicated a percent recovery outside the acceptance criteria with a low bias for #2 diesel fuel. Since this reflects a low bias, the associated sample was flagged "J" as estimated for this compound.

The continuing calibration verification (CCV) associated with the SVOC analysis of all samples indicated percent recoveries outside the acceptance criteria with low biases for 4-nitroaniline and 3,3'-dichlorobenzidine. Since these reflect low biases, the associated samples were flagged "J" as estimated for these compounds. This CCV also indicated percent recoveries outside the acceptance criteria with high biases for for n-nitrosodimethylamine, butyl benzyl phthalate, and bis (2-ethylhexyl) phthalate. Since these reflect high biases, and the compounds were not detected in the samples, no flags were issued.

The laboratory control sample (LCS) associated with the SVOC analysis of all samples indicated percent recoveries outside the acceptance criteria with low biases for 1,4-dichlorobenzene; 1,2-dichlorobenzene; 2-methyphenol; hexachloroethane; 2,4-dinitrophenol; and chrysene. Since

these reflect low biases, the associated samples were flagged "J" as estimated for these compounds.

The MS/MSD associated with the SVOC analysis of sample Site 2-SB10 3-4' indicated percent recoveries outside the acceptance criteria with low biases for 1,4-dichlorobenzene; 1,2-dichlorobenzene; 2,4-dimethylphenol; 2,4-dichlorophenol; 1,2,4-trichlorobenzene; hexachlorobutadiene; 2,4,5-trichlorophenol; 2,4-dinitrophenol; chrysene; and hexachloroethane. Since these reflect low biases, the associated sample was flagged "J" as estimated for these compounds.

Based on the results of this data validation, all data are considered complete and valid as qualified.

SDG 15K1139

The CCV associated with the SVOC analysis of all samples indicated percent recoveries outside the acceptance criteria with low biases for n-nitrosodimethylamine; (3 & 4) methylphenol; hexachlorocyclopentadiene; 2-nitroaniline; butyl benzyl phthalate; di-n-octyl phthalate; and bis (2-ethylhexyl) phthalate. Since these reflect low biases, the associated samples were flagged "J" as estimated for these compounds. This CCV also indicated percent recoveries outside the acceptance criteria with high biases for hexachlorobutadiene; hexachlorobenzene; and pentachlorophenol. Since these reflect high biases, and the compounds were not detected in the samples, no flags were issued.

The LCS associated with the SVOC analysis of all samples indicated percent recoveries outside the acceptance criteria with low biases for phenol; (3 & 4) methylphenol; 2,4-dinitrophenol; 4,6-dinitro-2-methylphenol; butyl benzyl phthalate; and chrysene. Since these reflect low biases, the associated samples were flagged "J" as estimated for these compounds. This LCS also indicated percent recoveries outside the acceptance criteria with high biases for hexachlorobenzene; di-n-butyl phthalate; benzo(b)fluoranthene; and benzo(k)fluoranthene. Since these reflect high biases, and the compounds were not detected in the samples, no flags were issued.

The MS/MSD associated with the SVOC analysis of sample ExB1-SW-North 3' indicated percent recoveries outside the acceptance criteria with low biases for various compounds. Since these reflect low biases, the associated sample was flagged "J" as estimated for these compounds.

Based on the results of this data validation, all data are considered complete and valid as qualified.

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